

CENSUS BULLETIN.

138914
MAR 27 1891

No. 41.

WASHINGTON, D. C.

March 19, 1891.

AGRICULTURE.—TRUCK FARMING.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,

WASHINGTON, D. C., March 5, 1891.

For the first time the industry known as truck farming has been made a subject of census investigation, and herewith is presented a preliminary report thereon, prepared by Mr. J. H. HALE, special agent, under the direction of Mr. MORTIMER WHITEHEAD, special agent in charge of the Division of Agriculture "B," of this office. The statistics are compiled from returns which have been received mainly from truck farmers, but are not as yet considered complete, and will be subject to revision for publication in the final report.

Truck farming, as considered in this report, is distinct from market gardening: the former is carried on in favored localities at a distance from market, water and rail transportation being necessary, while the latter is conducted near local markets, the grower of vegetables using his own team for transporting his products direct to either the retailer or consumer.

A summary of the number of acres under cultivation for truck-farming purposes and the value of products raised, given by districts, is herewith appended:

DISTRICTS.	Acres.	Value of products.	DISTRICTS.	Acres.	Value of products.
Total.....	534,440	\$76,517,155	South Atlantic.....	111,441	\$13,183,516
New England.....	6,838	3,184,218	Mississippi Valley.....	36,180	4,982,579
New York and Philadelphia.....	108,135	21,162,521	Southwest.....	36,889	4,979,783
Peninsular.....	25,714	2,413,648	Central.....	107,414	15,432,223
Norfolk.....	45,375	4,632,859	Northwest.....	1,083	204,791
Baltimore.....	37,181	3,784,696	Mountain.....	3,823	531,976
			Pacific Coast.....	14,357	2,021,315

Upward of \$100,000,000 are invested in this industry, the annual products reaching a value of \$76,517,155 on the farms after paying freights and commissions, realized upon 534,440 acres of land. There are employed in this industry 216,765 men, 9,254 women, and 14,874 children, aided by 75,866 horses and mules and \$8,971,206.70 worth of implements.

Robert P. Porter

Superintendent of Census.

TRUCK FARMING.

BY J. H. HALE.

The production of fruits and vegetables for market has always been prosecuted with great success, in earlier days as a branch of general farming, and more recently as a specialty, known as market gardening. The business is usually carried on with a few highly enriched and thoroughly cultivated acres of ground and a rotation of crops, so grown that there may be a daily supply throughout a considerable portion of the year. The farms are usually within a reasonable driving distance of cities and towns, and the products are generally sold to the retailer, and in many cases, especially in the smaller towns, directly to the consumer.

Truck farming, although it also consists in the production of green vegetables for market, is distinguished from market gardening by the fact that, while the market gardener lives near a market and delivers his products with his own teams, usually producing a general variety of vegetables, the truck farmer lives remote from market, is dependent upon transportation companies and commission men for the delivery and sale of his products, and usually devotes himself to such specialties as are best suited to his soil and climate.

Previous to 1860 truck farming was an infant industry, unknown except to a very limited extent along the steamboat and railway lines leading out fifty miles or so from a few of the larger northern cities. Long Island, New Jersey, Delaware, and southern Illinois appear to have been at that time the leading truck centers of the country.

The rapid growth of cities and towns, however, and their consequent demand for a greater quantity and variety of vegetables throughout the whole year; the changed conditions in the south after the close of the war, and the extending of old and building of new lines of railway, all combined to extend the business, until a very considerable portion of the vegetables consumed in cities and towns are produced from five hundred to fifteen hundred miles away. Instead of having vegetables in their respective seasons, by drawing upon the various sections of the country nearly all the standard vegetables are produced throughout the year. Late in the fall and early in the spring Florida and the lower Mississippi valley supply the eastern and central cities and California those of the far west and mountain section, until the advancing season, at the rate of about thirteen miles a day, starts the growth and consequent supply up along the Atlantic coast and the great Mississippi Valley, when the full season of midsummer in the north continues the supply until autumn frosts once more compel a return to the south, where a fresh crop awaits the demand of the market. While throughout the year California, out of her abundant store, sends products to her own large cities and those of the Rocky Mountain region, and even as far east as Denver, Kansas City, Saint Louis, and Chicago, the greenhouses of New England in early winter and spring supply the more tender vegetables that do not well withstand the deterioration of transportation, or are profitable enough to pay for the extra expense of their culture under glass. New potatoes, cabbage, cauliflower, garlic, and tomatoes have thus far been about the only products received at Saint Louis, Kansas City, and Chicago from California, and these only in limited quantities in seasons when there has been a partial failure in the lower Mississippi valley and in Florida. During December and February of the present winter superb tomatoes came from California and sold at prices that left a small profit to the grower, after paying the enormous express charges that must of necessity be charged for so long a haul; but, with the further development of railways, faster trains, and lower freight and express rates, that state will be in a position to compete sharply for much of the trade beyond the Mississippi, for, besides the natural fertility of a soil that will grow almost every vegetable to perfection, she has a climate where winter vegetables are not likely to be occasionally cut off by frost, as in the south.

Being of so comparatively recent origin, and never having been brought within the scope of census statistics, there has been little or no guide in making the present investigation, which reaches out to thousands of farms and homes in every state of the Union, and while nearly all have been furnished special schedules upon which to make individual reports, and many of the leading truck sections and farms have been visited by special agents, it has not been possible at this time to gather as full and complete statistics as will be shown in the final reports; and yet even these must, of necessity, lack some essential points of completeness, as many of the parties engaged in the business of truck farming keep little or no record of their business, and are not able from memory to furnish all the information desired. However, there has been a cheerful co-operation on the part of planters, marketmen, and transportation companies, and it is thought that valuable facts and figures have been obtained that will at least blaze the way for workers in future years.

Nearly 75 per cent of the truck produced in the United States comes from a belt of country along the Atlantic coast lying east of a line drawn from Augusta (Maine) to Macon (Georgia); from southern Georgia, Alabama, and Florida; along the north and south lines of railroad in the Mississippi valley from the Gulf to Chicago, Saint Louis, and Kansas City, and from the celery districts of Michigan and Ohio. As more or less truck is produced in all the states, it has been thought best, for the purposes of this bulletin, to divide the country into districts, as follows:

First. New England district: the field crops supplying Boston and other New England cities, and the greenhouse products supplying all the large cities of the East.

Second. New York and Philadelphia district: New York state, Long Island, New Jersey, and Pennsylvania, which contributes largely to the New York and Philadelphia markets.

Third. Peninsular district: Delaware and the eastern shore counties of Maryland and Virginia, which supplies all the northern and some of the central west markets.

Fourth. Norfolk district: eight southeastern counties of Virginia and eight northeastern counties of North Carolina, which largely supplies northeastern and central western markets.

Fifth. Baltimore district: western Maryland, West Virginia, and that part of Virginia not in the peninsular and Norfolk districts, largely tributary to Baltimore, Washington, and northern cities, as well as local canning factories.

Sixth. South Atlantic district: North Carolina, South Carolina, Georgia, and Florida, supplying northern markets, east and west.

Seventh. Mississippi Valley district: Alabama, Mississippi, Louisiana, Tennessee, and Kentucky, tributary to north central and northwestern cities.

Eighth. Southwest district: Texas, Arkansas, Missouri, and Kansas, largely tributary to Saint Louis and Kansas City.

Ninth. Central district: Ohio, Indiana, Illinois, Michigan, Wisconsin, Iowa, and Nebraska.

Tenth. Northwest district: Minnesota, North Dakota, and South Dakota.

Eleventh. Mountain district: Idaho, Wyoming, Utah, Nevada, Colorado, New Mexico, and Arizona.

Twelfth. Pacific Coast district: California, Oregon, and Washington.

On the truck farms of the United States in 1889, by the labor of 216,765 men, 9,254 women, and 14,874 children, aided by 75,866 horses and mules, working \$8,971,206.70 worth of implements, upon 534,440 acres of land, valued at \$70,156,293.59, there was produced truck valued at \$76,517,155 on the farms after paying freights and commissions.

The following table shows the total acreage of leading vegetables grown upon truck farms of the United States:

VEGETABLES.	Aeres.	VEGETABLES.	Aeres.
Total.....	534,440	Celery.....	15,381
Asparagus.....	37,970	Cucumbers.....	4,721
Beans (string or snap).....	12,607	Watermelons.....	114,381
Cabbage.....	77,094	Other melons.....	28,477
Kale.....	2,962	Peas.....	56,162
Spinach.....	20,195	Sweet potatoes.....	28,621
Irish potatoes.....	28,046	Tomatoes.....	22,802
Beets.....	2,420	Miscellaneous vegetables.....	82,601

The business being very largely the creature of transportation companies, the leading trucking centers are consequently along the lines of through railways or those having easy communication with the various large centers, which are nearly always distributing points for this class of produce. The South Atlantic states and southwest Michigan have also been greatly aided in their development by superb steamer accommodations. From Norfolk, Virginia, there are lines of ocean steamers to Philadelphia, New York, Providence, and Boston, which dispatch from fifteen to eighteen large steamers per week loaded with truck during the height of the season; besides, there are daily lines to Baltimore, Washington, and Richmond, that carry large quantities of truck among their miscellaneous cargoes.

Charleston, Savannah, and Jacksonville also have a large fleet of steamers that two to four times a week land enormous quantities of truck at New York and Boston, while from southwest Michigan ports daily steamers of small size land their truck in Chicago by thousands of barrels and boxes. In the eight southeastern counties of Virginia (not including Accomac and Northampton, which are in the peninsular district) and the eight northeastern ones of North Carolina, in what is known as the Norfolk district, there are numerous bays, rivers, and creeks of tide water upon which either small steamers, sailing vessels, or flatboats are used to transport truck direct from the farm to the large steamer docks at Portsmouth, Norfolk, or Old Point Comfort. An estimate made by producers and shippers in 1879 placed the value of the vegetable and berry crop for that year at \$1,751,645, while for the census year ended June 1, 1890, the value of the vegetable crop alone, as indicated by reports on special schedules received at this office from truckers, was \$5,773,467.25.

The season of 1889 was an unfavorable one in nearly all sections of the country for the truck farmer, yet the following vegetables were shipped from Norfolk: (a)

SHIPMENT OF VEGETABLES FROM NORFOLK, VIRGINIA, 1880.

VEGETABLES.	Barrels.	VEGETABLES.	Boxes.
Beets.....	2,900	Asparagus*.....	2,800
Cabbage.....	347,130	String beans.....	80,035
Kale.....	177,707	Cucumbers.....	46,280
Onions.....	4,800	Onions.....	9,600
Radishes.....	4,208	Radishes.....	8,417
Squashes.....	1,750	Squashes.....	3,500
Turnips.....	2,600	Tomatoes.....	350,000
Irish potatoes.....	325,000		
Sweet potatoes.....	255,000		
Spinach.....	122,929		

* Containing two and three dozen 2-lb. bunches.

In addition, there were shipped from the same point 863,152 melons and 180,949 packages of miscellaneous vegetables, making a total of 2,789,557 pieces shipped from Norfolk during the census year. The following statement shows the shipment of vegetables from Mobile, Alabama, during the years 1890, 1889, and 1888:

SHIPMENT OF VEGETABLES FROM MOBILE, ALABAMA.

ARTICLES.	1890.	1889.	1888.
Cabbage (crates).....	58,309	66,950	46,592
Potatoes (barrels).....	78,924	46,508	66,287
Beans (boxes).....	46,178	24,949	33,487
Peas (boxes).....	1,278	8,923	5,928
Cucumbers (barrels).....			122
Tomatoes (boxes).....	2,695	7,590	6,578
Watermelons.....	10,881	3,395	4,470
Various packages.....	785	1,490	264

a A comparison of this table with acreage of the leading varieties of vegetables reported from this district would indicate in some instances (especially in the case of Irish potatoes) a yield per acre somewhat above the average, which is accounted for by the fact that there are many small plots of less than a quarter of an acre that were not taken into account by the enumerators, but contribute to swell the total shipments; and again, a small amount of these shipments were produced just outside the limits of the district showing acreage.

The total values of these shipments for the years named in the table were as follows: 1890, \$458,065; 1889, \$371,113; 1888, \$393,295. For shipments from Mobile county 33.3 per cent should be added, not included above, making a grand total for the three years of \$1,629,964 for this small section.

SHIPMENTS OF CABBAGE AND POTATOES FROM MOBILE, ALABAMA, FROM 1880 TO 1890, INCLUSIVE.

YEARS.	Cabbage. (Crates.)	Value.	Potatoes. (Barrels.)	Value.
Total.....	305,302	\$854,506	438,453	\$1,029,001
1880.....	1,242	6,210	30,874	61,748
1881.....	10,224	33,228	16,131	44,361
1882.....	22,119	99,535	30,769	138,460
1883.....	27,462	82,356	33,577	75,534
1884.....	10,212	43,401	34,704	69,048
1885.....	18,201	40,952	38,363	57,544
1886.....	17,715	38,087	32,930	65,860
1887.....	26,286	85,430	29,386	117,564
1888.....	46,592	116,480	66,287	149,146
1889.....	66,950	133,900	46,508	111,619
1890.....	58,309	174,927	78,924	138,117

At this point are also grown many varieties of vegetables, such as onions, turnips, radishes, beets, celery, eggplants, lettuce, cantaloupes, muskmelons, pumpkins, etc.

Equally good returns could be given for other distributing points in southern trucking districts, such as Savannah (Georgia), Charleston (South Carolina), Jacksonville (Florida), etc., but those here included are simply illustrative of the general growth of the industry.

In the South Atlantic and Mississippi Valley districts were found a very large number of freedmen engaged in the business, owning their farms and teams and conducting their work as successfully as their former masters and white neighbors, and others are engaging in the business each year. Some of the special reports filled out and sent by these colored truckers are very complete in detail, both as to methods of culture and the business side of the question, such as transportation and marketing. The following is an extract from one of these reports:

LEADING PRODUCTS.	Number of acres of each.	Value of land per acre.	Fertilizers and quantity used.	Cost of fertilizers per acre.	Annual labor cost per acre.	Cost of seeds or plants per acre.	In what markets disposed of.	Average net income per acre from each.
Asparagus.....	6	\$100	High-grade commercial, $\frac{1}{2}$ ton per acre.	\$25.00	\$10.00	-----	New York, Philadelphia, Washington, and Baltimore.	\$50.00
Snap beans.....	4	100	do.....	20.00	10.00	\$4.00	do.....	37.00
Cabbages.....	2	125	do.....	22.50	7.50	2.50	do.....	75.00
Peas.....	5	100	do.....	20.00	5.00	8.00	do.....	50.00
Watermelons.....	5	100	do.....	20.00	5.00	1.00	do.....	25.00
Other melons.....	5	100	do.....	20.00	5.00	1.00	do.....	30.00
Irish potatoes.....	20	150	$\frac{1}{4}$ ton per acre.....	30.00	12.50	12.00	do.....	65.00

REMARKS.—Total number of acres, 47; value per acre, from \$100 to \$150; number of men employed during truck season, 5; average wages per day, 65 cents; number of horses and other animals employed, 4; value of implements used, \$75; total amount paid for labor annually, \$425; total amount paid for fertilizers, \$1,425; total gross income, \$4,627; total net income, \$2,423.

Of the vegetables grown by truck farmers, the leading classes are as follows: Watermelons, cabbage, peas, asparagus, melons other than watermelons, sweet potatoes, tomatoes, spinach, Irish potatoes, celery, and string beans, ranking in acreage in the order named. Beets, cucumbers,

cauliflower, carrots, eggplant, kale, lettuce, lima beans, parsnips, radishes, rhubarb, squashes, sweet corn, and turnips are also grown as truck-farm crops, but only to a limited extent as compared with the first named, these and other vegetables not here mentioned being grown mostly by market gardeners rather than by truck farmers. (a)

In each class there are a few leading varieties that prove most satisfactory all over the country, while others are sectional in their habits, either on account of soil or climatic conditions. Old and well-tried varieties are continually being discarded for various causes and new ones are constantly coming to the front; the more progressive truck farmers have, therefore, little test plots, where old and new varieties are tested side by side and the results noted.

The agricultural experiment stations in some states have also taken up the matter of seed and variety tests.

The following table gives the acreage by districts of leading vegetables grown:

NUMBER OF ACRES OF LEADING VARIETIES OF VEGETABLES GROWN, BY DISTRICTS.

DISTRICTS.	Asparagus.	Beets.	Snap or string beans.	Celery.	Cabbage.	Cucumbers.	Kale.	Watermelons.	Other melons.	Peas.	Irish potatoes.	Sweet potatoes.	Squash.	Tomatoes.	Miscellaneous.	Aggregate.
Total.....	37,976	2,420	12,697	15,381	77,094	4,721	2,962	114,381	28,477	50,162	28,046	28,621	29,195	22,802	82,661	534,440
New England.....	242	83	65	443	1,586	272		210	645	1,476	427		310	395	774	6,838
New York and Philadelphia.	6,592	864	2,710	4,058	41,054	870	110	7,320	7,223	9,446	2,361	4,699	3,262	6,990	10,615	108,135
Peninsular.....	2,640	67	615	97	3,275	313	590	2,469	1,160	3,224	1,295	4,850	2,128	416	2,565	25,714
Norfolk.....	1,973	116	1,098	130	9,790	285	878	2,974	1,784	5,858	3,365	3,187	5,965	525	7,507	45,375
Baltimore.....	2,270	134	585	198	4,165	369	261	620	476	5,170	2,869	3,159	1,989	3,780	11,173	37,181
South Atlantic.....	14,000	766	3,465		3,309	1,265	690	55,726	1,102	12,839	5,850	3,133	1,838	2,986	4,322	111,441
Mississippi Valley.....	2,323	144	1,376	46	2,816	354	240	6,069	1,343	5,879	4,071	1,160	1,590	3,170	5,599	36,180
Southwest.....	1,719	60	1,875	313	2,730	894	170	8,098	2,298	3,281	3,692	3,725	1,378	2,918	3,888	36,889
Central.....	5,864	186	818	9,812	6,103	108	23	28,771	12,210	7,555	2,845	4,556	1,744	1,392	25,457	107,414
Northwest.....	135			150	400					60				60	278	1,083
Mountain.....	12			18	493			390	18	99	840				1,969	3,833
Pacific Coast.....	110			116	1,370			1,794	279	1,224	599	190		290	8,454	14,357

The following table gives the number of acres planted, value of land, number of persons employed, and value of implements used:

NUMBER OF ACRES IN TRUCK-FARM CROPS, BY DISTRICTS.

DISTRICTS.	Acres planted.	Value of land per acre.	Total land value.	Men employed.	Women employed.	Children employed.	Horses and other animals employed.	Value of implements used.
Total.....	534,440		\$70,156,293.59	216,765	9,254	14,874	75,806	\$8,371,296.76
New England.....	6,838	\$317.91	2,173,868.58	7,718		185	3,468	355,361.20
New York and Philadelphia.....	108,135	226.11	24,450,494.85	68,964		1,378	26,232	3,596,594.25
Peninsular.....	25,714	98.75	2,539,257.50	10,748	760	890	3,641	496,936.00
Norfolk.....	45,375	135.50	6,148,312.50	17,815	2,258	2,416	5,790	876,316.06
Baltimore.....	37,181	97.50	3,625,147.50	13,210	1,450	1,690	5,265	778,094.00
South Atlantic.....	111,441	45.25	5,042,705.25	31,650	2,715	3,950	6,686	374,568.00
Mississippi Valley.....	36,180	62.51	2,261,611.80	13,920	886	1,375	2,905	287,487.50
Southwest.....	36,889	57.86	2,134,397.54	11,170	834	1,020	2,731	117,215.00
Central.....	107,414	159.91	17,176,572.74	33,695	359	1,970	16,456	1,782,624.00
Northwest.....	1,083	164.51	113,184.33	1,465			240	22,380.00
Mountain.....	3,833	98.50	377,550.50	1,445			595	44,245.50
Pacific Coast.....	14,357	286.50	4,113,280.50	4,965			1,767	269,385.25

a The fact must not be lost sight of that in making up this report no account has been taken of sweet or Irish potatoes or onions grown as great staple farm crops, or of any vegetables grown in market gardens.

The figures in the following table are based upon special reports received from leading truck farmers in the various districts. Wages are somewhat higher in Florida than in other southern states, thus advancing the average for the South Atlantic district considerably above the other districts employing negro labor.

LABOR COST PER ACRE ON LEADING VARIETIES OF VEGETABLES IN EACH TRUCKING DISTRICT.

DISTRICTS.	Asparagus.	Beets.	String or snap beans.	Celery.	Cabbage.	Cucumbers.	Kale.	Watermelons.	Other melons.	Peas.	Irish potatoes.	Sweet potatoes.	Spinach.	Tomatoes.
New England.....	\$34.27	\$75.00	\$42.00	\$58.00	\$36.25	\$137.50		\$24.00	\$37.50	\$20.37	\$16.00		\$37.00	\$75.00
New York and Philadelphia.....	36.46	18.50	35.00	41.62	26.28	16.00	\$23.15	14.29	26.60	26.47	16.25	\$10.00	14.29	39.00
Peninsular.....	21.60	20.25	11.25	16.50	18.60	14.50	21.75	12.50	10.75	10.00	13.00	11.00	15.50	26.50
Norfolk.....	18.33	22.50	12.50	17.50	19.70	15.00	23.50	13.33	11.85	10.18	12.00	13.00	15.72	27.15
Baltimore.....	19.00	22.75	13.25	16.75	20.50	15.50	24.75	16.40	12.50	11.25	13.75	12.75	16.75	31.25
South Atlantic.....	21.25	12.50	8.07		15.95	6.50	24.60	7.16	7.91	10.25	16.40	10.00	13.25	22.50
Mississippi Valley.....	16.00	21.50	21.00	17.00	17.23	18.50	19.00	9.40	17.75	16.00	14.75	12.00	15.50	29.66
Southwest.....	13.91	22.00	20.00	51.66	13.82	30.00	20.00	9.59	8.25	15.06	12.50	15.00	6.32	36.60
Central.....	31.11	23.25	25.00	52.71	22.20	16.00	21.00	12.30	15.92	18.67	13.50	12.50	15.55	40.00
Northwest.....	32.00			80.00	15.55					18.00				50.00
Mountain.....	35.00			95.00	24.00			13.70	17.10	19.90	16.75			
Pacific Coast.....	33.00			87.00	19.50			12.60	14.90	16.45	14.10	13.00		31.60

The greatly increased labor cost on beets in New England is accounted for by the fact that some of the planters first start the plants in greenhouses in early spring, then transplant them into 2½-inch pots, and finally into the open field as soon as the weather will permit, all of which greatly adds to the labor cost. Cucumbers also, being so largely grown under glass in this district, adds greatly to their cost. The increased labor cost of some other vegetables in the New England district is accounted for by the difficulty of cultivating the soil, and the fact that labor is more scarce and therefore commands a higher price, while in most of the other districts the soil is easier tilled and labor more abundant, colored persons being mostly employed.

SEEDS AND PLANTS.

For the ordinary farm crops the seeds and plants are very largely of home or neighborhood production, while on the truck farm so much more time and attention has to be given to the details of growing and marketing that but little attention is given to seed growing. Consequently the seed trade finds among truck farmers their largest and best customers.

The following table shows the cost of seeds and plants per acre for the various crops, the difference being caused largely by the lack of uniformity in prices and by difference in quantity of seed used, and, again, by the few reports on this subject received from truckers in some of the districts. More complete returns may make a slight change before printing the final reports.

COST OF SEEDS AND PLANTS PER ACRE IN EACH TRUCKING DISTRICT.

DISTRICTS.	Asparagus plants. (a)	Asparagus seed. (a)	String or snap beans.	Beet seed.	Cabbage plants.	Cabbage seed.	Celery plants.	Celery seed.	Cucumber seed.
New England.....	\$19.00	\$1.00	\$2.50	\$2.00	\$15.00	\$1.03	\$15.00	\$0.96	\$0.50
New York and Philadelphia.....	15.27	1.00	2.60	1.31	10.50	1.06	16.50	1.00	0.50
Peninsular.....	21.00	0.50	3.00	3.00	10.50	0.65	12.75	1.00	0.60
Norfolk.....	19.00	0.62	3.00	2.50	11.00	0.75	15.00	1.00	0.50
Baltimore.....	24.00	0.75	3.00	3.00	12.50	0.50	16.00	1.00	0.60
South Atlantic.....	16.40	1.00	3.32	3.75	5.75	1.00			0.90
Mississippi Valley.....	16.00	1.00	4.60	2.50	7.45	1.25	12.50	0.85	1.00
Southwest.....	16.87	0.75	3.00	2.50	11.12	1.44	12.00	1.00	1.00
Central.....	15.53	0.75	3.00	2.50	9.88	0.81	9.85	0.89	0.60
Northwest.....	17.50	1.00			6.00	0.90	13.33	0.75	
Mountain.....	20.00	1.25			8.00	1.00	12.50		
Pacific Coast.....	14.00	0.85			6.00	0.75	12.00	0.85	

a Cost of seeds or plants for the asparagus is not an annual expense, for when a field is once established it is permanent.

COST OF SEEDS AND PLANTS PER ACRE IN EACH TRUCKING DISTRICT—CONTINUED.

Districts.	Watermelon seed.	Other melon seed.	Kale seed.	Peas.	Irish potatoes.	Sweet potatoes.	Spinach seed.	Tomato plants.	Tomato seed.
New England.....	\$2.00	\$3.00		\$6.00	\$6.50		\$1.55	\$14.00	\$0.40
New York and Philadelphia.....	1.20	1.43	\$2.50	7.75	10.33	\$7.50	1.73	10.00	0.75
Peninsular.....	0.75	1.10	3.00	5.40	8.50	5.00	1.34	9.00	0.65
Norfolk.....	0.75	1.00	2.60	6.50	8.00	6.00	1.50	10.00	0.50
Baltimore.....	0.75	1.00	2.50	6.00	9.00	5.75	1.40	12.00	0.50
South Atlantic.....	0.85	1.32	2.50	7.40	12.00	8.00	1.40	13.00	0.95
Mississippi Valley.....	0.90	1.33	2.50	7.00	12.00	7.25	1.55	16.33	1.25
Southwest.....	0.86	1.26	2.50	7.77	13.00	5.83	1.75	15.00	1.05
Central.....	0.98	1.18	2.50	6.63	6.00	5.50	1.62	16.25	1.00
Northwest.....				7.50				16.00	1.00
Mountain.....	1.25	1.75		8.00	7.00				
Pacific Coast.....	1.00	1.25		7.50	6.00	5.00		8.00	0.75

FERTILIZERS.

As the largest and finest vegetables can only be grown upon land in a very high state of cultivation, and maturity is also hastened by liberal feeding, the question of fertilization is one to which the truck farmer has had to pay close attention, especially at the east and south, where the soil is not as fertile as at the west and on the Pacific coast. Market gardeners near cities and towns absorb nearly the full supply of stable manure, and as stock feeding is not carried on to any considerable extent in connection with truck farming, commercial manures are necessarily the main dependence of the truck farmer, especially at the south. In the intelligent use of these manures farmers have been greatly aided by the agricultural experiment stations established in the various states. Special manures are now compounded for feeding the various crops. Potatoes and other root crops are supplied with a fertilizer rich in potash and phosphoric acid and only a moderate supply of nitrogen, while foliage crops, notably cabbage, celery, and spinach, are given a fertilizer very rich in nitrogen and a smaller proportion of the other essential elements of plant food.

The principal raw materials used in the manufacture of special manures are as follows:

First. Containing nitrogen as the chief valuable ingredient: nitrate of soda, sulphate of ammonia, dried blood, cotton-seed meal, castor pomace, dried fish, dried flesh.

Second. Containing phosphoric acid as the chief valuable ingredient: dissolved bone black, phosphatic guano, acid phosphate (rock), dissolved raw bone, ground raw bone.

Third. Containing potash as the chief valuable ingredient: high-grade sulphate of potash, muriate of potash, kainit (cotton-hull ashes).

Fourth. Containing nitrogen and phosphoric acid: bone manure, tankage, dry ground fish scrap.

The work of agricultural experiment stations, and the frequent popular bulletins issued by them and by the United States Department of Agriculture, have materially aided the truck farmer to a more intelligent understanding of the question of plant food and plant feeding, so that now on many large truck farms there are mills and machinery for the home mixing of fertilizers, the raw materials being bought in carload lots and any required mixture made to supply the demands of various soils and crops. However, more than 80 per cent of the commercial manures used are purchased by truckers all mixed and ready for immediate use. An application of 1,500 pounds per acre on each of the 407,130 acres of truck farms of the east and south of a fertilizer costing on an average \$30 per ton absorbed \$9,160,425 of truck-farm money in 1889.

In the New England and New York and Philadelphia districts very liberal manuring is practiced, while at the south but a comparatively small quantity of manure is used. In the central west, whatever food has to be furnished the soil and plants is mostly supplied by stable manure. The Mountain and Pacific Coast districts report using so little manure that it has not been possible at this time to arrive at any average of cost; in fact, it can almost be said that for the present they require little or no manure on most of the lands to produce satisfactory crops, especially when there is an abundance of water for irrigation.

The cost per acre of fertilizers for the leading varieties of vegetables is given in the following table, the figures being based upon special reports received from leading truck farmers in the various districts :

FERTILIZER COST PER ACRE FOR LEADING VARIETIES OF VEGETABLES.

DISTRICTS.	Asparagus.	Beets.	Snap or string beans.	Celery.	Cabbage.	Cucumbers.	Kale.	Watermelons.	other melons.	Pears.	Irish potatoes.	Sweet potatoes.	Spinach.	Tomatoes.
New England.....	\$52.78	\$40.00	\$30.00	\$92.89	\$97.85	\$30.00		\$21.00	\$23.00	\$30.00	\$50.00		\$35.17	\$60.00
New York and Philadelphia.....	31.64	40.00	14.00	42.50	31.25	28.00	\$30.00	24.42	23.50	27.18	21.50	\$15.50	31.50	45.00
Peninsular.....	19.20	30.00	12.50	65.33	31.00	28.00	26.33	13.70	15.00	9.05	30.12	9.33	24.65	17.50
Norfolk.....	20.50	26.50	11.75	47.50	36.00	28.50	27.50	13.50	11.00	16.50	32.00	8.75	25.50	21.00
Baltimore.....	23.50	28.00	12.00	48.00	32.50	26.00	25.50	11.10	11.75	11.25	29.50	9.50	24.75	20.00
South Atlantic.....	25.00	16.00	7.25		22.75	10.00	23.00	7.20	8.75	11.25	27.00	15.00	15.00	21.00
Mississippi Valley.....	25.50	13.00	14.33	20.00	35.72	28.33	22.00	9.87	6.31	18.87	16.45	9.00	12.00	21.20
Southwest.....	27.00	12.00	8.00	20.00	22.94	16.00	20.00	10.12	4.88	10.00	19.00	10.00	13.00	25.00
Central.....	29.50	10.00	7.50	15.28	19.89	9.75	15.00	9.15	8.88	14.72	13.00	17.50	25.83	11.50
Northwest.....	20.00			30.00	28.00					10.00			18.00	17.00
Mountain.....														
Pacific Coast.....														

INCOME AND PROFITS.

While some truckers plant a great number of acres, but by lack of sufficient fertilization and thorough culture secure only moderate crops, which return very little, if any, profit, a large majority practice what is known as "intensive" farming, which results (except in bad seasons) in very heavy crop returns, the net proceeds of which, however, vary greatly with each season and market. The larger markets being often over-supplied with certain vegetables, or on their arrival they are found in bad condition, the consignment will sell for only enough to pay freight and cartage, and in some few instances not even enough for that, while another variety of vegetables sent to the same market on the same days will return very high prices, netting a fine profit, leaving the whole average of the business satisfactory.

The average melon fields of the South Atlantic states yield about 400 salable melons per acre. Twelve hundred will load a car, which will sell in the north anywhere from \$150 to \$275, leaving net returns of from nothing up to \$150 per car. One gentleman in Dawson county, Georgia, reports making a net profit of \$1,700 from 32 acres in 1889

The following table indicates average profits secured in different sections of the country:

NET INCOME PER ACRE ON LEADING VARIETIES OF VEGETABLES.

DISTRICTS.	Asparagus.	Beets.	Snap or string beans.	Celery.	Cabbage.	Cucumbers. (a)	Kale.	Watermelons.	other melons.	Pears.	Irish potatoes.	Sweet potatoes.	Spinach.	Tomatoes.
New England.....	\$216.66	\$200.00	(a)	\$206.66	\$183.83	\$2,000.00		\$100.00	\$188.33	\$130.00	\$100.00		\$175.00	\$300.00
New York and Philadelphia.....	183.60	150.00	(a)	214.41	133.37	(a)	(a)	81.66	158.81	67.00	90.00	\$75.00	80.00	165.00
Peninsular.....	84.00	80.00	\$32.00	66.00	95.00	26.00	\$50.00	43.00	51.00	26.00	77.25	43.60	32.60	43.00
Norfolk.....	93.33	88.60	32.50	68.25	101.92	25.00	50.00	46.00	37.50	27.48	80.83	56.50	33.75	45.00
Baltimore.....	87.75	80.60	28.70	87.75	96.50	27.50	47.00	42.00	53.50	29.50	68.50	52.10	37.60	34.00
South Atlantic.....	93.63	95.00	42.94		113.61	175.00	(a)	32.63	75.00	57.37	101.00	105.50	70.00	94.72
Mississippi Valley.....	116.66	(a)	52.50	(a)	128.32	160.00	(a)	37.60	47.50	100.00	79.50	(a)	(a)	117.80
Southwest.....	121.40	(a)	(a)	150.00	154.52	250.00	(a)	46.30	72.90	58.00	66.50	35.00	73.00	20.00
Central.....	116.40	100.00	(a)	176.63	98.44	140.00	87.00	67.66	101.76	71.15	56.66	117.50	44.62	133.14
Northwest.....	160.00			225.00	81.66					87.50				60.00
Mountain.....	165.00			237.00	79.50			80.00	61.00	67.00	98.50			
Pacific Coast.....	217.00			247.50	145.00			53.90	67.10	71.00	107.50	110.00		65.00

a Data as to net income not obtained.

b The enormous profits from cucumbers in the New England districts resulted from their culture under glass at great expense.

The gross income on truck-farm products, after deducting commissions and charges for transportation, was \$76,517,155; the cost of labor (\$9,474,825.58), the cost of fertilizers (\$9,919,307.89), and the cost of seeds (\$1,419,633.50) being deducted, the net income is shown to be \$51,909,265.06, leaving a difference between the gross and net income of \$3,794,122.97 more than is accounted for. This difference is caused by various local expenses not reported on special schedules, but no doubt is nearly all for shipping packages.

The figures of gross income (\$76,517,155) are based upon those given by the regular census enumerators. Investigation through special schedules show that the income reported was in nearly every case that received from the commission men, who deducted from 15 to 40 per cent from the gross value of products sold to pay costs of transportation and commissions on sales. Had charges for transportation and commissions been included, the total gross income would have been in the neighborhood of \$95,000,000.

Taken in its entirety, this comparatively new industry is found to be in a healthy, prosperous condition. New sections are being developed from year to year that to a certain extent affect the prosperity of some of the older ones, and there is likely to be more or less shifting of trucking centers every few years, all upon advancing lines, however. New and better methods of culture, with the further invention of labor-saving machinery, must of necessity reduce the cost of production. Better transportation facilities will place the products of these farms in cities and towns more promptly, in better condition, and at less cost, while the ever increasing population and wealth of the cities and towns insure a greatly increased consumption at satisfactory prices for first-class productions.

138963
MAR 27 1891

CENSUS BULLETIN.

No. 42.

WASHINGTON, D. C.

March 20, 1891.

POPULATION BY COUNTIES.

South Central and Western Divisions.

DEPARTMENT OF THE INTERIOR,

CENSUS OFFICE,

WASHINGTON, D. C., March 16, 1891.

This bulletin gives the population in detail by counties for the states and territories comprised within the South Central and Western divisions, as follows :

SOUTH CENTRAL DIVISION: Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Texas, Oklahoma, Arkansas.

WESTERN DIVISION: Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho, Washington, Oregon, California.

The figures given in this bulletin are according to the official count of the returns of the Eleventh Census as finally determined. The population for each county as returned in 1880 is given for purposes of comparison, together with the increase or decrease during the decade.

Similar statements of population by counties are issued as separate bulletins for the states and territories comprising the North Atlantic and South Atlantic divisions, and for the states and territories comprising the North Central division. The states and territories included in these divisions are as follows :

[AS A SEPARATE BULLETIN.]

NORTH ATLANTIC DIVISION: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania.

SOUTH ATLANTIC DIVISION: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida.

[AS A SEPARATE BULLETIN.]

NORTH CENTRAL DIVISION: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas.

POPULATION BY COUNTIES.

SOUTH CENTRAL DIVISION.

STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.	STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.
	1890.	1880.				1890.	1880.		
Kentucky	1,858,635	1,648,690	209,945		Kentucky—Continued.				
Adair.....	13,721	13,078	643		Leslie.....	3,964	3,740	224	
Allen.....	13,092	12,089	1,003		Letcher.....	6,920	6,601	319	
Anderson.....	10,610	9,861	1,249		Lewis.....	14,803	13,154	1,649	
Ballard.....	8,390	14,378		5,988	Lincoln.....	15,962	15,080	882	
Barren.....	21,490	22,321		831	Livingston.....	9,474	9,165	309	
Bath.....	12,813	11,982	831		Logan.....	23,812	24,358		546
Bell.....	10,312	6,055	4,257		Lyon.....	7,628	6,768	860	
Boone.....	12,246	11,996	250		McCracken.....	21,051	16,262	4,789	
Bourbon.....	16,976	15,956	1,020		McLean.....	9,887	9,293	594	
Boyd.....	14,033	12,165	1,868		Madison.....	24,348	22,052	2,296	
Boyle.....	12,948	11,930	1,018		Magoffin.....	9,196	6,944	2,252	
Bracken.....	12,369	13,509		1,140	Marion.....	15,648	14,693	955	
Breathitt.....	8,705	7,742	963		Marshall.....	11,287	9,647	1,640	
Breckinridge.....	18,376	17,486	1,490		Martin.....	4,209	3,057	1,152	
Bullitt.....	8,391	8,521		230	Mason.....	20,773	20,460	304	
Butler.....	13,956	12,181	1,775		Meade.....	9,481	10,323		839
Caldwell.....	13,186	11,282	1,904		Menifee.....	4,666	3,755	911	
Calloway.....	14,675	13,235	1,380		Mercer.....	15,034	14,142	892	
Campbell.....	44,208	37,440	6,768		Metcalfe.....	9,871	9,423	448	
Carlisle.....	7,612		7,612		Monroe.....	10,989	10,741	248	
Carroll.....	9,266	8,953	313		Montgomery.....	12,367	10,566	1,801	
Carter.....	17,204	12,345	4,859		Morgan.....	11,249	8,455	2,794	
Cassey.....	11,848	10,983	865		Muhlenberg.....	17,955	15,098	2,857	
Christian.....	34,118	31,682	2,436		Nelson.....	16,417	16,609		192
Clark.....	15,434	12,115	3,319		Nicholas.....	10,764	11,869		1,105
Clay.....	12,447	10,222	2,225		Ohio.....	22,946	19,669	3,277	
Clinton.....	7,047	7,212		165	Oldham.....	6,754	7,667		913
Crittenden.....	13,119	11,688	1,431		Owen.....	17,676	17,401	275	
Cumberland.....	8,452	8,894		442	Owsley.....	5,975	4,942	1,033	
Daviess.....	33,120	27,730	5,390		Pendleton.....	16,346	16,702		356
Edmonson.....	8,005	7,222	783		Perry.....	6,381	5,607	724	
Elliott.....	9,214	6,567	2,647		Pike.....	17,378	13,001	4,377	
Estill.....	10,836	9,860	976		Powell.....	4,698	3,639	1,059	
Fayette.....	35,698	29,023	6,675		Pulaski.....	25,731	21,318	4,413	
Fleming.....	16,978	15,221	1,757		Robertson.....	4,684	5,814		1,130
Floyd.....	11,256	10,176	1,080		Rockcastle.....	9,841	9,670	171	
Franklin.....	21,267	18,699	2,568		Rowan.....	6,129	4,420	1,709	
Fulton.....	10,005	7,877	2,028		Russell.....	8,136	7,591	545	
Gallatin.....	4,611	4,832		221	Scott.....	16,546	14,965	1,581	
Garrard.....	11,138	11,704		566	Shelby.....	16,521	16,813		292
Grant.....	12,671	13,033		412	Simpson.....	10,878	10,641	237	
Graves.....	28,534	24,138	4,396		Spencer.....	6,760	7,040		280
Grayson.....	18,688	15,784	2,904		Taylor.....	9,353	9,259	94	
Green.....	11,463	11,871		408	Todd.....	16,814	15,994	820	
Greenup.....	11,911	13,371		1,460	Trigg.....	13,902	14,489		587
Hancock.....	9,214	8,563	651		Trimble.....	7,140	7,171		31
Hardin.....	21,304	22,564		1,260	Union.....	18,229	17,809	420	
Harlan.....	6,197	5,278	919		Warren.....	30,158	27,531	2,627	
Harrison.....	16,914	16,504	410		Washington.....	13,622	14,419		797
Hart.....	10,439	17,133		694	Wayne.....	12,852	12,512	340	
Henderson.....	29,536	24,515	5,021		Webster.....	17,196	14,246	2,950	
Henry.....	14,164	14,492		328	Whitley.....	17,690	12,000	5,690	
Hickman.....	11,637	10,651	986		Wolfe.....	7,180	5,638	1,542	
Hopkins.....	23,505	19,122	4,383		Woodford.....	12,380	11,800	580	
Jackson.....	8,261	6,678	1,583		Tennessee	1,767,518	1,542,859	225,159	
Jefferson.....	188,598	146,010	42,588		Anderson.....	15,128	10,820	4,308	
Jessamine.....	11,248	10,864	384		Bedford.....	24,739	26,025		1,286
Johnson.....	11,027	9,155	1,872		Benton.....	11,230	9,780	1,450	
Kenton.....	54,161	43,983	10,178		Bledsoe.....	6,184	5,617	517	
Knox.....	5,438		5,438		Blount.....	17,589	15,985	1,604	
Laurel.....	13,762	10,587	3,175		Bradley.....	13,607	12,124	1,483	
Lawrence.....	9,433	9,798		360	Campbell.....	13,486	10,005	3,481	
Lee.....	6,205	4,254	1,951		Cannon.....	12,197	11,859	338	
					Carroll.....	23,630	22,103	1,527	
					Carter.....	13,889	10,019	3,870	

POPULATION BY COUNTIES—SOUTH CENTRAL DIVISION—CONTINUED.

STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.	STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.
	1890.	1880.				1890.	1880.		
Tennessee—Continued.					Tennessee—Continued.				
Cheatham.....	8,845	7,956	889		Trousdale.....	5,850	6,646		796
Chester.....	9,069		9,069		Union.....	11,459	10,250	1,199	
Clairborne.....	15,103	13,373	1,730		Van Buren.....	2,863	2,953		70
Clay.....	7,260	6,987	273		Warren.....	14,413	14,079		334
Cocke.....	10,523	14,808	1,715		Washington.....	20,354	16,181	4,173	
Coffee.....	13,827	12,894	933		Wayne.....	11,471	11,301		170
Crockett.....	15,146	14,109	1,037		Weakley.....	28,955	24,538	4,417	
Cumberland.....	5,376	4,538	838		White.....	12,348	11,176	1,172	
Davidson.....	108,174	79,026	29,148		Williamson.....	26,321	28,313		1,992
Decatur.....	8,995	8,498	497		Wilson.....	27,148	28,747		1,599
De Kalb.....	15,650	14,813	837		Alabama				
Dickson.....	13,645	12,460	1,185		1,513,017	1,262,506	250,512		
Dyer.....	19,878	15,118	4,760		Aulanga.....	13,330	13,108		222
Fayette.....	28,878	31,871		2,993	Baldwin.....	8,941	8,603		338
Fentress.....	5,220	5,941		715	Barbour.....	34,896	33,979		919
Franklin.....	18,929	17,178	1,751		Bibb.....	13,824	9,457	4,367	
Gibson.....	35,859	32,685	3,174		Blount.....	21,927	15,369	6,558	
Giles.....	34,957	36,014		1,057	Bullock.....	27,063	29,066		2,003
Granger.....	13,196	12,384	812		Butler.....	21,641	19,649		1,992
Greene.....	26,614	24,005	2,609		Calhoun.....	33,835	19,591	14,244	
Grundy.....	6,345	4,592	1,753		Chambers.....	26,319	23,440	2,879	
Hamblen.....	11,418	10,187	1,231		Cherokee.....	29,459	19,108	1,351	
Hamilton.....	53,482	23,042	29,840		Chilton.....	14,549	10,793	3,756	
Hancock.....	10,342	9,098	1,244		Choctaw.....	17,526	15,731	1,795	
Hardeman.....	21,029	22,921		1,892	Clarke.....	22,624	17,806	4,818	
Hardin.....	17,698	14,793	2,905		Clay.....	15,765	12,938	2,827	
Hawkins.....	22,246	20,610	1,636		Cleburne.....	13,218	10,976	2,242	
Haywood.....	23,558	26,053		2,495	Coffee.....	12,170	8,119	4,051	
Henderson.....	16,336	17,430		1,094	Colbert.....	20,189	16,153	4,036	
Henry.....	21,070	22,142		1,072	Conceh.....	14,594	12,605	1,989	
Hickman.....	14,499	12,095	2,404		Coosa.....	15,906	15,113	793	
Houston.....	5,390	4,295	1,095		Covington.....	7,536	5,639	1,897	
Humphreys.....	11,720	11,379	341		Crenshaw.....	15,425	11,726	3,699	
Jackson.....	13,325	12,008	1,317		Cullman.....	13,439	6,355	7,084	
James.....	4,903	5,187		284	Dale.....	17,225	12,677	4,548	
Jefferson.....	16,478	15,846	632		Dallas.....	49,350	48,433	917	
Johnson.....	8,858	7,766	1,092		De Kalb.....	21,166	12,675	8,491	
Knox.....	59,537	39,124	20,433		Elmore.....	21,732	17,502	4,230	
Lake.....	5,304	3,968	1,336		Escambia.....	8,666	5,719	2,947	
Lauderdale.....	18,756	14,918	3,838		Etowah.....	21,926	15,398	6,528	
Lawrence.....	12,286	10,383	1,903		Fayette.....	12,823	10,135	2,688	
Lewis.....	2,555	2,181	374		Franklin.....	10,681	9,155	1,526	
Lincoln.....	27,382	26,900	422		Geneva.....	10,680	4,342	6,338	
Loudon.....	9,273	9,148	125		Greene.....	22,007	21,931	76	
McMinn.....	17,890	15,064	2,826		Henry.....	27,501	26,553	948	
McNairy.....	15,510	17,271		1,761	Henry.....	24,847	18,761	6,086	
Macon.....	10,878	9,321	1,557		Jackson.....	28,028	25,114	2,912	
Madison.....	30,497	30,874		377	Jefferson.....	88,501	23,272	65,229	
Marion.....	15,411	10,810	4,601		Lamar.....	14,187	12,142	2,045	
Marshall.....	18,906	19,259		353	Lauderdale.....	23,739	21,035	2,704	
Matury.....	38,112	39,004		1,792	Lawrence.....	20,725	21,392		667
Melgs.....	6,930	7,117		187	Lee.....	28,694	27,262	1,432	
Monroe.....	15,329	14,283	1,046		Limestone.....	21,201	21,600		399
Montgomery.....	29,697	28,481	1,216		Lowndes.....	31,550	31,176	374	
Moore.....	5,975	6,233		258	Macon.....	18,439	17,371	1,068	
Morgan.....	7,639	5,156	2,483		Madison.....	38,119	37,625	494	
Obion.....	27,273	22,012	4,861		Marengo.....	33,095	30,860	2,235	
Overton.....	12,039	12,153		114	Marion.....	11,347	9,364	1,983	
Perry.....	7,785	7,174	611		Marshall.....	18,935	14,585	4,350	
Pickett.....	4,736		4,736		Mobile.....	51,587	48,653	2,934	
Polk.....	8,361	7,269	1,092		Monroe.....	18,990	17,091	1,899	
Putnam.....	13,683	11,501	2,182		Montgomery.....	56,172	52,356	3,816	
Rhea.....	12,647	7,073	5,574		Morgan.....	24,089	16,428	7,661	
Roane.....	17,418	15,237	2,181		Perry.....	29,332	30,741		1,409
Robertson.....	20,078	18,861	1,217		Pickens.....	22,470	21,479	991	
Rutherford.....	35,097	36,741		1,644	Pike.....	24,423	20,640	3,783	
Scott.....	9,794	6,021	3,773		Randolph.....	17,219	16,575	644	
Sequitchee.....	3,027	2,565	462		Russell.....	24,093	24,837		744
Sevier.....	18,761	15,541	3,220		Saint Clair.....	17,353	14,462	2,891	
Shelby.....	112,740	78,430	34,310		Shelby.....	20,886	17,236	3,650	
Smith.....	18,404	17,799	605		Sumter.....	29,574	28,728	846	
Stewart.....	12,193	12,690		497	Talladega.....	29,346	23,360	5,986	
Sullivan.....	20,879	18,321	2,558		Tallahpoosa.....	25,460	23,401	2,059	
Sumner.....	23,668	23,625	43		Tuscaloosa.....	30,352	24,937	5,415	
Tipton.....	24,271	21,033	3,238		Walker.....	16,078	9,479	6,599	
					Washington.....	7,935	4,538	3,397	
					Wilcox.....	30,816	31,828		1,012
					Winston.....	6,552	4,253	2,299	

POPULATION BY COUNTIES—SOUTH CENTRAL DIVISION—CONTINUED.

STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.	STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.
	1890.	1880.				1890.	1880.		
Mississippi	1,289,600	1,131,597	158,003		Louisiana	1,118,587	939,946	178,641	
Adams	26,031	22,649	3,382		Acadia	13,231		13,231	
Aleorn	13,115	14,272		1,157	Ascension	19,545	16,895	2,650	
Amite	18,198	14,001	4,194		Assumption	19,629	17,010	2,619	
Attala	22,213	19,988	2,225		Avoyelles	25,112	16,747	8,365	
Benton	10,585	11,023		438	Bienville	14,108	10,442	3,666	
Bolivar	29,980	18,652	11,328		Bossier	20,330	16,042	4,288	
Calhoun	14,688	13,492	1,196		Caddo	31,555	26,266	5,289	
Carroll	18,773	17,705	978		Calcasieu	20,176	12,484	7,692	
Chickasaw	19,891	17,905	1,986		Caldwell	5,814	5,767	47	
Choctaw	10,847	9,035	1,811		Cameron	2,828	2,416	412	
Claiborne	14,516	16,768		2,252	Catahoula	12,002	10,277	1,725	
Clarke	15,826	15,021	805		Claiborne	23,312	18,837	4,475	
Clay	18,607	17,367	1,240		Concordia	14,871	14,914		43
Conthoma	18,342	13,568	4,774		De Soto	19,860	15,603	4,257	
Copiah	30,233	27,552	2,681		East Baton Rouge	25,922	19,966	5,956	
Covington	8,299	5,963	2,336		East Carroll	12,362	12,134	228	
De Soto	24,183	22,924	1,259		East Feliciana	17,903	15,132	2,771	
Franklin	10,424	9,729	695		Franklin	6,900	6,495	405	
Greene	3,906	3,194	712		Grant	8,270	6,188	2,082	
Grenada	14,974	12,071	2,903		Iberia	20,997	16,676	4,321	
Hancock	8,318	6,439	1,879		Iberville	21,848	17,544	4,304	
Harrison	12,481	7,895	4,586		Jackson	7,453	5,328	2,125	
Hinds	39,279	43,958		4,679	Jefferson	13,221	12,166	1,055	
Holmes	30,970	27,164	3,806		Lafayette	15,966	13,236	2,731	
Issaquena	12,318	10,004	2,314		Lafourche	22,095	19,113	2,982	
Itawamba	11,708	10,663	1,045		Lincoln	14,753	11,075	3,678	
Jackson	11,251	7,607	3,644		Livingston	5,769	5,258	511	
Jasper	14,785	12,126	2,659		Madison	14,135	13,906	229	
Jefferson	18,947	17,314	1,633		Morehouse	16,786	14,206	2,580	
Jones	8,333	3,323	4,990		Natchitoches	25,330	19,707	5,623	
Kemper	17,961	15,719	2,242		Orleans	242,039	216,090	25,949	
Lafayette	20,553	21,671		1,118	Ouachita	17,985	14,685	3,300	
Lauderdale	29,661	21,501	8,160		Plaquemines	12,541	11,575	966	
Lawrence	12,318	9,420	2,898		Point Coupee	19,613	17,785	1,828	
Leuke	14,803	13,146	1,657		Rapides	27,642	23,563	4,079	
Lee	20,040	20,470		430	Red River	11,918	8,873	2,745	
Leflore	16,869	10,246	6,623		Richland	10,230	8,440	1,790	
Lincoln	17,912	13,547	4,365		Sabine	9,890	7,344	2,546	
Lowndes	27,047	28,244		1,197	Saint Bernard	4,326	4,405		79
Madison	27,321	25,866	1,455		Saint Charles	7,737	7,161	576	
Marion	9,532	6,901	2,631		Saint Helena	8,062	7,504	558	
Marshall	26,043	29,330		3,287	Saint James	15,715	14,714	1,001	
Monroe	30,730	28,553	2,177		Saint John the Baptist	11,359	9,686	1,673	
Montgomery	14,459	13,348	1,111		Saint Landry	40,250	40,001	246	
Neshoba	11,146	8,741	2,405		Saint Martin	14,884	12,663	2,221	
Newton	16,625	13,496	3,129		Saint Mary	22,416	19,891	2,525	
Noxubee	27,338	29,874		2,536	Saint Tammany	10,160	6,887	3,273	
Oktibbeha	17,694	15,978	1,716		Tangipahoa	12,655	9,638	3,017	
Panola	26,977	28,332		1,355	Tensas	16,647	17,815		1,168
Pearl River	2,957		2,957		Terre Bonne	20,167	17,957	2,210	
Perry	6,494	3,427	3,067		Union	17,304	13,526	3,778	
Pike	21,203	16,088	4,515		Vermilion	14,234	8,728	5,506	
Pontotoc	14,940	13,858	1,082		Vernon	5,003	5,160	743	
Prentiss	13,679	12,153	1,521		Washington	6,700	5,190	1,510	
Quitman	3,286	1,407	1,879		Webster	12,466	10,005	2,461	
Rankin	17,922	16,752	1,170		West Baton Rouge	8,393	7,667	696	
Scott	11,740	10,345	1,395		West Carroll	3,748	2,776	972	
Sharkey	8,382	6,306	2,076		West Feliciana	15,062	12,809	2,253	
Simpson	10,133	8,008	2,125		Winn	7,082	5,846	1,236	
Smith	10,635	8,088	2,547		Texas	2,235,523	1,501,749	643,774	
Sumner		9,534		9,534	Anderson	20,923	17,395	3,528	
Sunflower	9,384	4,661	4,723		Andrews	24		24	
Tallahatchie	14,361	10,926	3,435		Angelina	6,306	5,239	1,067	
Tate	19,253	18,721	532		Aransas	1,824	996	828	
Tippah	12,951	12,867	84		Archer	2,101	596	1,505	
Tishomingo	9,302	8,774	528		Armstrong	944	31	913	
Tunica	12,158	8,461	3,697		Atascosa	6,459	4,217	2,242	
Union	15,606	13,030	2,576		Austin	17,859	14,429	3,430	
Warren	33,164	31,238	1,926		Bailey (a)				
Washington	40,414	23,367	15,047		Bandera	3,782	2,158	1,624	
Wayne	9,817	8,741	1,076						
Webster	12,000	12,060		223					
Wilkinson	17,562	17,815		253					
Winston	12,089	10,087	2,002						
Yalobusha	16,629	15,649	980						
Yazoo	36,394	33,845	2,549						

(a) No population.

POPULATION BY COUNTIES—SOUTH CENTRAL DIVISION—CONTINUED.

STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.	STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.
	1890.	1880.				1890.	1880.		
Texas—Continued.					Texas—Continued.				
Bastrop	20,736	17,215	3,521		Gillespie	7,028	5,228	1,800	
Baylor	2,595	715	1,880		Glasscock	268		268	
Bee	3,720	2,298	1,422		Goliad	5,910	5,822	78	
Bell	33,297	20,518	12,779		Gonzales	18,916	14,849	3,176	
Bexar	49,266	30,470	18,796		Gray	293	56	147	
Blanco	4,635	3,583	1,052		Grayson	53,211	38,198	15,103	
Borden	222	95	127		Gregg	9,402	8,530	872	
Bosque	14,157	11,217	2,940		Grimes	21,312	18,696	2,709	
Bosque	20,267	10,965	9,302		Guadalupe	15,217	12,292	3,015	
Bowie	11,506	9,774	1,732		Hale	721		721	
Brazos	16,650	13,576	3,074		Hall	703	36	667	
Brewster	710		710		Hamilton	9,279	6,965	2,314	
Briscoe		12		12	Hansford	133	18	115	
Brown	11,359	8,414	2,945		Haskell	3,904	50	3,854	
Buchel	307		307		Hardeman	3,956	1,870	2,086	
Burleson	13,001	9,243	3,758		Harris	37,249	27,985	9,264	
Burnet	10,721	6,855	3,866		Harrison	26,721	25,177	1,544	
Caldwell	15,769	11,757	4,012		Hartley	272	100	172	
Callahan	815	1,739		924	Haskell	1,695	48	1,647	
Callahan	5,434	3,453	1,981		Hays	11,352	7,555	3,797	
Cameron	14,424	14,959		535	Hemphill	519	149	370	
Camp	6,624	5,931	693		Henderson	12,285	9,735	2,550	
Carson	956		956		Hidalgo	6,534	4,347	2,187	
Cass	22,554	16,724	5,830		Hill	27,583	16,354	11,029	
Castro	9		9		Hockley (a)				
Chambers	2,241	2,187	54		Hood	7,581	6,125	1,456	
Cherokee	22,975	16,723	6,252		Hopkins	20,572	15,461	5,111	
Childress	1,175	25	1,150		Houston	19,360	16,702	2,658	
Clay	7,503	5,045	2,458		Howard	1,210	50	1,160	
Cochran (a)					Hunt	31,885	17,230	14,655	
Coke	2,059		2,059		Hutchinson	58	50	8	
Coleman	6,088	3,603	2,485		Irion	879		879	
Collin	36,730	25,983	10,747		Jack	9,740	6,626	3,114	
Collingsworth	357	6	351		Jackson	3,281	2,723	558	
Colorado	10,512	16,673	2,839		Jasper	5,592	5,779	187	
Comal	6,398	5,546	852		Jeff Davis	1,394		1,394	
Comanche	16,393	8,608	7,785		Jefferson	5,857	3,489	2,368	
Concho	1,050	800	250		Johnson	22,313	17,911	4,402	
Cooke	24,696	20,391	4,305		Jones	3,797	546	3,251	
Coryell	16,816	10,924	5,892		Karnes	3,637	3,270	367	
Cottle	240	24	216		Kaufman	21,598	13,448	6,150	
Crane	15		15		Kendall	3,809	2,763	1,046	
Crockett	194	127	67		Kent	324	92	232	
Crosby	346	82	264		Kerr	4,445	2,168	2,277	
Dallam	75		75		Kimble	2,294	1,343	951	
Dallas	67,042	33,488	33,554		King	173	40	133	
Dawson	29	24	5		Kinney	3,781	4,487	706	
Deaf Smith	179	38	141		Knox	1,194	77	1,067	
Delta	9,117	5,597	3,520		Lamar	37,302	27,193	10,109	
Denton	21,289	18,143	3,146		Lamb	4		4	
De Witt	14,307	10,082	4,225		Lampasas	7,565	5,421	2,144	
Dickens	295	28	267		La Salle	2,139	789	1,350	
Dimmit	1,049	665	384		Lavaca	21,887	13,641	8,246	
Donley	1,056	160	896		Lea	11,952	8,937	3,015	
Duval	7,598	5,732	1,866		Leon	13,841	12,817	1,024	
Eastland	10,343	4,855	5,488		Liberty	4,230	4,999	769	
Ector	224	224			Limestone	21,678	16,246	5,432	
Edwards	1,962	266	1,696		Lipscomb	632	69	563	
Ellis	31,774	21,294	10,480		Live Oak	2,055	1,994	61	
El Paso	15,078	3,845	11,233		Llano	6,759	4,962	1,797	
Encinal	1,022	1,962		880	Loving	3		3	
Erath	21,515	11,796	9,719		Lubbock	33	25	8	
Falls	20,706	16,240	4,466		Lytle	24	9	15	
Fannin	38,709	25,501	13,208		McCulloch	3,205	1,333	1,872	
Fayette	31,481	27,996	3,485		McIntosh	39,204	26,931	12,270	
Fisher	2,996	196	2,800		McMullen	1,038	701	337	
Floyd	529	3	526		Madison	8,512	5,335	3,177	
Foley	16		16		Marion	10,862	10,983	121	
Fort Bend	10,586	9,389	1,206		Martin	264	12	252	
Franklin	6,481	5,280	1,201		Mason	5,168	2,655	2,513	
Freestone	15,987	14,021	1,966		Matagorda	3,985	3,940	45	
Frio	3,112	2,130	982		Maverick	3,698	2,967	731	
Gaines	68	8	60		Medina	5,730	4,492	1,238	
Galveston	31,470	24,121	7,355		Menard	1,267	1,229	38	
Garza	14	36		22	Midland	1,933		1,933	

(a) No population.

POPULATION BY COUNTIES—SOUTH CENTRAL DIVISION—CONTINUED.

STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.	STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.
	1890.	1880.				1890.	1880.		
Texas—Continued.					Texas—Continued.				
Milam.....	24,773	18,459	6,114		Williamson.....	25,878	15,155	10,723	
Mills.....	5,480		5,480		Wilson.....	10,055	7,118	3,537	
Mitchell.....	2,659	117	1,942		Winkler.....	18		18	
Montague.....	18,863	11,257	7,606		Wise.....	24,131	16,601	7,533	
Montgomery.....	11,765	10,154	1,611		Wood.....	13,932	11,212	2,720	
Moore.....	15		15		Yoakum.....	4		4	
Morris.....	6,580	5,032	1,548		Young.....	5,049	4,726	323	
Motley.....	130	24	115		Zapata.....	3,562	3,636		74
Nacogdoches.....	15,984	11,590	4,394		Zavalla.....	1,097	410	687	
Navarro.....	26,373	21,702	4,671		Oklahoma (a).....				
Newton.....	4,650	4,359	291		Beaver.....	2,674		2,674	
Nolan.....	1,573	640	933		Canadian.....	7,158		7,158	
Nueces.....	8,693	7,673	420		Cleveland.....	6,605		6,605	
Ochiltree.....	198		198		Kingfisher.....	8,332		8,332	
Oldham.....	270	287		17	Logan.....	12,770		12,770	
Orange.....	4,770	2,938	1,832		Oklahoma.....	11,742		11,742	
Palo Pinto.....	8,320	5,885	2,435		Payne.....	7,215		7,215	
Panola.....	14,328	12,219	2,109		Greer.....	5,338		5,338	
Parker.....	21,682	15,870	5,812		Arkansas.....				
Parmer.....	7		7		Arkansas.....	1,128,179	802,925	325,654	
Pecos.....	1,326	1,807		481	Ashley.....	11,432	8,038	3,394	
Polk.....	10,322	7,189	3,133		Baxter.....	13,295	10,156	3,139	
Potter.....	849	28	821		Benton.....	8,527	6,004	2,523	
Presidio.....	1,698	2,873		1,175	Boone.....	27,716	20,328	7,388	
Rains.....	3,909	3,035	874		Boone.....	15,816	12,146	3,670	
Randall.....	187	3	184		Bradley.....	7,972	6,285	1,687	
Reel River.....	21,452	17,194	4,258		Calhoun.....	7,267	5,671	1,596	
Reeves.....	1,247		1,247		Carroll.....	17,288	13,337	3,951	
Refugio.....	1,239	1,555		316	Chicot.....	11,419	10,117	1,302	
Roberts.....	326	32	294		Clark.....	20,997	15,771	5,226	
Robertson.....	20,506	22,383	4,123		Clay.....	12,200	7,213	4,987	
Rockwall.....	5,972	2,984	2,988		Cleburne.....	7,384		7,384	
Runnels.....	3,182	980	2,202		Cleveland (b).....	11,362	8,370	2,992	
Rusk.....	18,559	18,996		427	Columbia.....	19,853	14,090	5,803	
Sabine.....	4,069	4,161	808		Conway.....	19,459	12,755	6,704	
San Augustine.....	6,688	5,084	1,604		Craighead.....	12,025	7,037	4,988	
San Jacinto.....	7,360	6,186	1,174		Crawford.....	21,714	14,740	6,974	
San Patricio.....	1,312	1,010	302		Crittenden.....	13,940	9,415	4,525	
San Saba.....	6,621	5,324	1,297		Cross.....	7,692	5,050	2,642	
Schleicher.....	155		155		Dallas.....	9,296	6,505	2,791	
Scurry.....	1,415	102	1,313		Desha.....	10,324	8,973	1,351	
Shackelford.....	2,012	2,037		25	Drew.....	17,352	12,231	5,121	
Shelby.....	14,305	9,523	4,842		Faulkner.....	18,342	12,786	5,556	
Sherman.....	71		71		Franklin.....	19,334	14,951	4,383	
Smith.....	28,324	21,863	6,461		Fulton.....	10,984	6,720	4,264	
Somervell.....	3,411	2,649	762		Garland.....	15,328	9,023	6,305	
Starr.....	10,032	8,304	1,728		Grant.....	7,786	6,185	1,601	
Stephens.....	4,926	4,735	201		Greene.....	12,908	7,480	5,428	
Stonewall.....	1,024	104	920		Hempstead.....	22,796	19,015	3,781	
Sutton.....	658		658		Hot Spring.....	11,663	7,775	3,888	
Swisher.....	100	4	96		Howard.....	13,789	9,917	3,872	
Tarrant.....	41,142	24,671	16,471		Independence.....	21,961	18,086	3,875	
Taylor.....	6,946	1,796	5,210		Izard.....	13,038	10,857	2,181	
Terry.....	21		21		Jackson.....	15,179	10,877	4,302	
Throckmorton.....	902	711	191		Jefferson.....	40,881	22,386	18,495	
Titus.....	8,190	5,959	2,231		Johnson.....	16,758	11,565	5,193	
Tom Green.....	5,152	3,615	1,537		Lafayette.....	7,700	5,730	1,970	
Travis.....	37,019	27,028	9,991		Lawrence.....	12,984	8,782	4,202	
Trinity.....	7,648	4,915	2,733		Lee.....	18,860	13,288	5,598	
Tyler.....	10,877	5,825	5,052		Lincoln.....	10,255	9,255	1,000	
Upshur.....	12,695	10,266	2,429		Little River.....	8,903	6,404	2,499	
Upton.....	52		52		Logan.....	20,774	14,885	5,889	
Uvalde.....	3,804	2,541	1,263		Lonoke.....	19,263	12,146	7,117	
Val Verde.....	2,874		2,874		Madison.....	17,402	11,455	5,947	
Van Zandt.....	16,225	12,619	3,606		Marion.....	10,390	7,307	2,483	
Victoria.....	8,737	6,289	2,448		Miller.....	14,714	9,919	4,795	
Walker.....	12,874	12,024	850		Mississippi.....	11,635	7,932	4,303	
Waller.....	10,888	9,024	1,864		Monroe.....	15,336	9,574	5,762	
Ward.....	77		77		Montgomery.....	7,923	5,729	2,194	
Washington.....	29,161	27,565	1,596		Nevada.....	14,832	12,959	1,873	
Webb.....	16,564	5,273	11,291						
Wharton.....	7,584	4,549	3,035						
Wheeler.....	778	512	266						
Wichita.....	4,831	433	4,398						
Wilbarger.....	7,092	126	6,966						

a Including Greer county, in dispute, claimed by Texas.

b Formerly Dorsey county.

POPULATION BY COUNTIES—SOUTH CENTRAL DIVISION—CONTINUED.

STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.	STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.
	1890.	1880.				1890.	1880.		
Arkansas—Continued.					Arkansas—Continued.				
Newton.....	9,950	6,120	3,830		Scott.....	12,635	9,174	3,461	
Osage.....	17,033	11,758	5,275		Searey.....	9,664	7,278	2,386	
Perry.....	5,538	3,872	1,666		Sebastian.....	23,200	19,560	3,640	
Phillips.....	25,341	21,202	4,079		Sevier.....	10,072	6,192	3,880	
Pike.....	8,537	6,345	2,192						
Poinsett.....	4,272	2,192	2,080		Sharp.....	10,418	9,047	1,371	
Polk.....	9,283	5,857	3,426		Stone.....	7,043	5,089	1,954	
Pope.....	19,458	14,322	5,136		Union.....	14,977	13,419	1,558	
Prairie.....	11,374	8,435	2,939		Van Buren.....	8,567	9,565		998
Pulaski.....	47,329	32,616	14,713		Washington.....	32,024	23,844	8,180	
Randolph.....	14,485	11,724	2,761		White.....	22,946	17,794	5,152	
Saint Francis.....	13,543	8,389	5,154		Woodruff.....	14,009	8,646	5,363	
Saline.....	11,311	8,953	2,358		Yell.....	18,015	13,852	4,163	

WESTERN DIVISION.

Montana.....	132,159	39,159	93,000		Colorado—Continued.				
Beaver Head.....	4,655	2,712	1,943		Grand.....	604	417	187	
Cascade.....	8,755		8,755		Gunnison.....	4,350	8,235		3,885
Choteau.....	4,741	3,058	1,683		Hinsdale.....	802	1,487		625
Custer.....	5,308	2,510	2,798		Huerfano.....	6,882	4,124	2,758	
Dawson.....	2,056	180	1,876		Jefferson.....	8,450	6,804	1,646	
Deer Lodge.....	15,155	8,876	6,279		Kiowa.....	1,243		1,243	
Fergus.....	3,514		3,514		Kit Carson.....	2,472		2,472	
Gallatin.....	6,246	3,643	2,603		Lake.....	14,663	23,563		8,900
Jefferson.....	6,026	2,464	3,562		La Plata.....	5,509	1,110	4,399	
Lewis and Clarke.....	19,145	6,821	12,324		Larimer.....	9,712	4,882	4,830	
Madison.....	4,692	3,915	777		Las Animas.....	17,208	8,903	8,305	
Meagher.....	4,749	2,743	2,006		Lincoln.....	689		689	
Missoula.....	14,427	2,537	11,890		Logan.....	3,070		3,070	
Park.....	6,881		6,881		Mesa.....	4,260		4,260	
Silver Bow.....	23,744		23,744		Montezuma.....	1,529		1,529	
Yellowstone.....	2,065		2,065		Montrose.....	3,980		3,980	
Wyoming.....	60,705	20,789	39,916		Morgan.....	1,601		1,601	
Albany.....	8,865	4,026	4,839		Otero.....	4,192		4,192	
Big Horn (a).....					Ouray.....	6,510	2,669	3,841	
Carbon.....	6,857	3,438	3,419		Park.....	3,548	3,970		422
Converse.....	2,738		2,738		Phillips.....	2,642		2,642	
Crook.....	2,338	239	2,099		Pitkin.....	8,929		8,929	
Fremont.....	2,463		2,463		Provers.....	1,969		1,969	
Johnson.....	2,357	637	1,720		Pueblo.....	31,491	7,617	23,874	
Laramie.....	16,777	6,409	10,368		Rio Blanco.....	1,200		1,200	
Natrona.....	1,094		1,094		Rio Grande.....	3,451	1,944	1,507	
Sheridan.....	1,972		1,972		Routt.....	2,369	140	2,229	
Sweetwater.....	4,941	2,561	2,380		Saguache.....	3,313	1,973	1,340	
Tiuta.....	7,881	2,879	5,002		San Juan.....	1,572	1,087	485	
Weston.....	2,422		2,422		San Miguel.....	2,909		2,909	
Colorado.....	412,198	194,327	217,871		Sedgwick.....	1,293		1,293	
Arapahoe.....	132,135	38,644	93,491		Summit.....	1,905	5,459		3,553
Archuleta.....	826		826		Washington.....	2,301		2,301	
Baca.....	1,479		1,479		Weld.....	11,736	5,646	6,090	
Bent.....	1,313	1,634		341	Yuma.....	2,596		2,596	
Boulder.....	14,082	9,723	4,359		New Mexico.....	153,593	119,565	34,028	
Chaffee.....	6,612	6,512	100		Bernalillo.....	20,913	17,225	3,688	
Cheyenne.....	534		534		Chaves.....				
Clear Creek.....	7,184	7,823		639	Colfax.....	7,974	3,398	4,576	
Conejos.....	7,193	5,605	1,588		Dofia Ana.....	9,191	7,612	1,579	
Costilla.....	3,491	2,879	612		Eddy (a).....				
Custer.....	2,970	8,080		5,110	Grant.....	9,657	4,539	5,118	
Delta.....	2,534		2,534		Lincoln.....	7,081	2,513	4,568	
Dolores.....	1,498		1,498		Mora.....	10,618	9,751	867	
Douglas.....	3,006	2,486	520		Rio Arriba.....	11,534	11,023	511	
Bagle.....	3,725		3,725		San Juan.....	1,800		1,800	
Elbert.....	1,856	1,708	148		San Miguel.....	24,204	20,638	3,566	
El Paso.....	21,239	7,049	13,290		Santa Fe.....	13,562	10,867	2,695	
Fremont.....	9,156	4,735	4,421		Sierra.....	3,630		3,630	
Garfield.....	4,478		4,478		Socorro.....	9,595	7,875	1,720	
Gilpin.....	5,867	6,489		622	Taos.....	9,868	11,029		1,161
					Valencia.....	13,876	13,066	781	

a No population.

POPULATION BY COUNTIES—WESTERN DIVISION—CONTINUED.

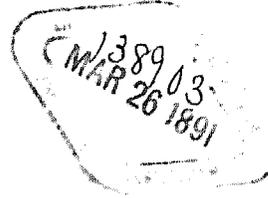
STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.	STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.
	1890.	1880.				1890.	1880.		
Arizona	59,620	40,440	19,180		Washington	349,390	75,116	274,274	
Apache.....	4,281	5,283		1,002	Adams.....	2,098		2,098	
Cochise.....	6,938		6,938		Asotin.....	1,580		1,580	
Gila.....	2,021		2,021		Chehalis.....	9,240	921	8,328	
Graham.....	5,670		5,670		Challam.....	2,771	638	2,133	
Maricopa.....	10,986	5,689	5,297		Clarke.....	11,700	5,490	6,210	
Mohave.....	1,444	1,190	254		Columbia.....	6,709	7,103		394
Pima.....	12,673	17,006		4,333	Cowlitz.....	5,917	2,062	3,855	
Pinal.....	4,251	3,044	1,207		Douglas.....	3,161		3,161	
Yavapai.....	8,685	5,013	3,672		Franklin.....		696	696	
Yuma.....	2,671	3,215		544	Garfield.....	3,897		3,897	
Utah	207,905	143,963	63,942		Island.....	1,787	1,087	700	
Beaver.....	3,340	3,918		578	Jefferson.....	8,368	1,712	6,656	
Box Elder.....	7,642	6,761	881		King.....	63,989	6,910	57,079	
Cache.....	15,509	12,562	2,947		Kitsap.....	4,624	1,738	2,886	
Davis.....	6,469	5,279	1,190		Kittitas.....	8,777		8,777	
Emery.....	4,866	586	4,310		Klickitat.....	5,167	4,055	1,112	
Garfield.....	2,457		2,457		Lewis.....	11,499	2,600	8,899	
Grand.....	541		541		Lincoln.....	9,312		9,312	
Iron.....	2,683	4,013		1,330	Mason.....	2,826	639	2,187	
Juab.....	5,582	3,474	2,108		Okanogan.....	1,467		1,467	
Kane.....	1,685	3,085		1,400	Pacific.....	4,358	1,645	2,713	
Millard.....	4,033	3,727	306		Pierce.....	50,940	3,319	47,621	
Morgan.....	1,780	1,783		3	San Juan.....	2,072	948	1,124	
Pi Ute.....	2,842	1,651	1,191		Skagit.....	8,747		8,747	
Rich.....	1,527	1,263	264		Skamania.....	774	809		35
Salt Lake.....	58,457	31,977	26,480		Snohomish.....	8,514	1,387	7,127	
San Juan.....	365	204	161		Spokane.....	37,487	4,262	33,225	
Sanpete.....	13,146	11,557	1,589		Stevens.....	4,341	1,245	3,096	
Sevier.....	6,199	4,457	1,742		Thurston.....	9,675	3,270	6,405	
Summit.....	7,733	4,921	2,812		Wahkiakum.....	2,526	1,598	928	
Tooele.....	3,700	4,497		797	Walla Walla.....	12,224	8,716	3,508	
Uinta.....	2,292	799	1,493		Whatcom.....	18,591	3,137	15,454	
Utah.....	23,416	17,973	5,443		Whitman.....	19,109	7,014	12,095	
Wasatch.....	4,627	2,927	1,700		Yakima.....	4,429	2,811	1,618	
Washington.....	4,009	4,235		226	Oregon	313,767	174,768	138,999	
Weber.....	23,065	12,344	10,661		Baker.....	6,764	4,616	2,148	
Nevada	45,761	62,266		16,505	Benton.....	8,650	6,403	2,247	
Churchill.....	703	479	224		Clackamas.....	15,233	9,260	5,973	
Douglas.....	1,551	1,581		30	Clatsop.....	10,016	7,222	2,794	
Elko.....	4,794	5,716		922	Columbia.....	5,191	2,042	3,149	
Esmeralda.....	2,148	3,220		1,072	Coos.....	8,874	4,834	4,040	
Eureka.....	3,275	7,086		3,811	Crook.....	3,244		3,244	
Humboldt.....	3,434	3,480		46	Curry.....	1,709	1,208	501	
Lander.....	2,266	3,624		1,358	Douglas.....	11,864	9,596	2,268	
Lincoln.....	2,463	2,637		171	Gilliam.....	3,600		3,600	
Lyon.....	1,987	2,409		422	Grant.....	5,080	4,303	777	
Nye.....	1,290	1,875		585	Harney.....	2,559		2,559	
Ormsby.....	4,883	5,412		529	Jackson.....	11,455	8,154	3,301	
Roop.....	348	286	62		Josephine.....	4,578	2,488	2,090	
Storey.....	8,806	16,115		7,309	Klamath.....	2,444		2,444	
Washoe.....	6,089	5,664	425		Lake.....	2,604	2,804		200
White Pine.....	1,721	2,682		961	Lane.....	15,198	9,411	5,787	
Idaho	84,385	32,610	51,775		Linn.....	19,265	12,976	6,289	
Ada.....	8,368	4,674	3,694		Malheur.....	2,601		2,601	
Alturas.....	2,629	1,693	936		Marion.....	22,934	14,976	8,358	
Hear Lake.....	6,057	3,235	2,822		Morrow.....	4,205		4,205	
Bingham.....	13,575		13,575		Multnomah.....	74,884	25,203	49,681	
Boise.....	3,342	3,214	128		Polk.....	7,858	6,601	1,257	
Cassia.....	3,143	1,312	1,831		Sherman.....	1,792		1,792	
Custer.....	2,176		2,176		Tillamook.....	2,932	970	1,962	
Elmore.....	1,870		1,870		Umatilla.....	13,381	9,607	3,774	
Idaho.....	2,955	2,031	924		Union.....	12,044	6,650	5,394	
Kootenai.....	4,108	518	3,590		Wallowa.....	3,661		3,661	
Latah.....	9,173		9,173		Wasco.....	9,183	11,120		1,937
Lemhi.....	1,915	2,230		315	Washington.....	11,972	7,082	4,890	
Logan.....	4,169		4,169		Yanhill.....	10,692	7,945	2,747	
Nez Perce.....	2,847	3,965		1,118	California	1,208,130	864,694	343,436	
Oneida.....	6,819	6,964		145	Alameda.....	93,864	62,976	30,888	
Owyhee.....	2,021	1,426	595		Alpine.....	667	539	128	
Shoshone.....	6,382	409	4,973		Amador.....	10,320	11,384		1,064
Washington.....	3,836	879	2,957		Butte.....	17,939	18,721		782
					Calaveras.....	8,882	9,094		212

POPULATION BY COUNTIES—WESTERN DIVISION—CONTINUED.

STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.	STATES AND COUNTIES.	POPULATION.		Increase.	Decrease.
	1800.	1880.				1890.	1880.		
California—Continued.					California—Continued.				
Colusa.....	14,640	13,118	1,522		San Bernardino.....	25,497	7,786	17,711	
Contra Costa.....	13,515	12,525	990		San Diego.....	34,987	8,618	26,369	
Del Norte.....	2,592	2,584	8		San Francisco.....	298,997	233,959	65,038	
El Dorado.....	9,232	10,683		1,451	San Joaquin.....	28,629	24,349	4,280	
Fresno.....	32,026	9,478	22,548		San Luis Obispo.....	16,072	9,142	6,930	
Humboldt.....	23,469	15,512	7,957		San Mateo.....	10,087	8,669	1,418	
Inyo.....	3,544	2,928	616		Santa Barbara.....	15,764	9,513	6,251	
Kern.....	9,808	5,601	4,207		Santa Clara.....	38,095	35,639	2,456	
Lake.....	7,101	6,596	505		Santa Cruz.....	19,270	12,802	6,468	
Lassen.....	4,239	3,340	899		Shasta.....	12,133	9,492	2,641	
Los Angeles.....	101,454	33,381	68,073		Sierra.....	5,051	6,623		1,572
Marin.....	13,072	11,324	1,748		Siskiyou.....	12,163	8,610	3,553	
Mariposa.....	3,787	4,339		552	Solano.....	20,946	18,475	2,471	
Mendocino.....	17,612	12,800	4,812		Sonoma.....	32,721	25,926	6,795	
Merced.....	8,085	5,656	2,429		Stanislaus.....	10,040	8,751	1,289	
Modoc.....	4,986	4,399	587		Sutter.....	5,469	5,159	310	
Mono.....	2,002	7,499		5,497	Tehama.....	9,916	9,301	615	
Monterey.....	18,637	11,302	7,335		Trinity.....	3,719	4,669		1,280
Napa.....	16,411	13,235	3,176		Tulare.....	24,574	11,281	13,293	
Nevada.....	17,369	20,823		3,454	Troolumne.....	6,082	7,848		1,766
Orange.....	13,589		13,589		Ventura.....	10,071	5,073	4,998	
Placer.....	15,101	14,232	869		Yolo.....	12,684	11,772	912	
Plumas.....	4,933	6,180		1,247	Yuba.....	9,636	11,284		1,648
Sacramento.....	40,339	34,390	5,949						
San Benito.....	6,412	5,584	828						

ROBERT P. PORTER,

Superintendent of Census.



CENSUS BULLETIN.

No. 43.

WASHINGTON, D. C.

March 21, 1891.

COAL PRODUCT WEST OF THE MISSISSIPPI RIVER.

DEPARTMENT OF THE INTERIOR,

CENSUS OFFICE,

WASHINGTON, D. C., March 16, 1891.

The following bulletin, giving a history of the coal product in the states west of the Mississippi river, was prepared by Mr. JOHN H. JONES, special agent, under the supervision of Dr. DAVID T. DAY, special agent in charge of the Division of Mines and Mining of the Census Office.

Only a brief résumé of this important industry can be given in a bulletin, but complete and interesting details will be presented in the final report.

The total amount of coal produced in the states and territories west of the Mississippi river aggregated in the calendar year—

	SHORT TONS.
1889	16,067,500
1880	4,584,324
Increase	11,483,176

The value of this product at the mines was as follows:

1889	\$24,413,262
1880	8,829,722
Increase	15,583,540

It is apparent, therefore, that the quantity of coal produced in 1889 has increased to more than threefold during the decade, while the value has decreased from \$1.93 per ton at the mines in 1880 to \$1.52 in 1889.

Four states and territories are now given as producers of coal for which no product was reported in 1880, namely, North Dakota, Texas, New Mexico, and Indian territory.

The quality of the coal varies in the states and territories named in the report, comprising lignite, bituminous, and anthracite, all being suitable for steam and heating purposes, while the product of some of the mines is well adapted for gas, coking, and smelting purposes.

The following table gives the product of coal in detail, the number of mines, disposition of the total product, value at mines, average price per ton, and the number of persons to whom this industry gave employment, with the wages received :

COAL PRODUCT WEST OF THE MISSISSIPPI RIVER.

[The figures given are for the short ton of 2,000 pounds.]

DIVISIONS AND STATES.	NUMBER OF MINES.		Total product.	DISPOSITION OF TOTAL PRODUCT.				Value of total product at mines.	Average price per ton.	Wages.	Number of persons employed.
	Regular establishments.	Country banks and local mines.		Loaded at mines for shipment on railroad cars or boats.	Used by employes and sold to local trade.	Used for steam and heat at mines.	Made into coke.				
Grand total.....	569	1,326	16,067,500	14,155,650	1,270,300	320,088	321,462	\$24,413,262	\$1.52	\$17,156,395	36,165
Trans-Mississippi valley	449	1,234	10,051,229	8,749,515	1,102,290	186,281	13,143	14,271,622	1.42	10,178,264	24,082
Dakota and Nebraska.....	5	338	30,307	18,610	11,697	.....	.....	46,831	1.53	18,460	76
Kansas.....	127	295	2,230,763	1,891,110	309,941	29,212	500	3,294,754	1.48	2,320,591	5,085
Indian territory.....	10	.....	752,832	669,122	7,095	33,997	12,618	1,323,806	1.76	927,267	1,867
Iowa.....	172	223	4,061,704	3,514,073	464,741	82,865	25	5,392,220	1.33	3,003,291	9,198
Missouri.....	123	356	2,567,823	2,237,480	295,444	34,899	.....	3,478,058	1.35	2,546,812	6,789
Arkansas.....	8	16	279,584	268,518	6,820	4,246	.....	395,836	1.42	205,009	588
Texas.....	4	6	128,216	120,602	6,552	1,062	.....	340,617	2.66	256,834	549
Rocky Mountain region..	98	91	4,836,368	4,263,558	144,720	119,771	808,319	7,486,004	1.55	5,558,244	9,793
Montana.....	8	22	363,301	314,372	12,977	5,376	30,576	881,523	2.43	587,538	857
Wyoming.....	15	10	1,388,947	1,354,443	15,433	19,071	.....	1,748,618	1.26	1,554,067	2,692
Colorado.....	53	40	2,360,536	1,911,226	91,250	83,534	269,526	3,605,922	1.53	2,542,820	4,645
New Mexico.....	18	12	486,983	466,557	8,043	6,383	6,000	872,785	1.79	605,248	1,034
Utah.....	4	7	236,601	216,960	17,017	407	2,217	377,456	1.60	268,571	565
Pacific coast.....	22	1	1,179,903	1,142,577	23,290	14,036	.....	2,655,636	2.25	1,410,887	2,290
California and Oregon.....	10	1	186,179	178,111	6,962	3,106	.....	451,881	2.43	264,649	443
Washington.....	12	.....	993,724	964,466	16,323	10,930	.....	2,203,755	2.22	1,153,238	1,847

Robert T. Porter

Superintendent of Census.

COAL PRODUCT WEST OF THE MISSISSIPPI RIVER.

BY JOHN H. JONES.

NORTH AND SOUTH DAKOTA.

The states of North and South Dakota were admitted into the union November 2, 1889. The ascertained coal areas of these states lie in the western counties, between a line drawn from the Turtle mountains in the north, through Burleigh county, to the southern borders of the Black Hills and the western boundary line. The principal developments have been made along the line of the Northern Pacific railway at Bismarck and westward at points along the Missouri river as far north as Fort Stevenson, and also in the vicinity of Hay creek, in the Black Hills.

The product is a fair grade of lignite or brown coal, suitable for heating and steam, and in some localities is found to be adapted for the manufacture of gas. The seams vary in thickness from a few inches to twelve feet. The absence of transportation facilities has hitherto retarded the development of the coal-mining industry, but under the new conditions of statehood increasing demands will encourage railroad construction and stimulate a more intelligent prosecution of mining operations. The best authorities upon the subject look forward to a near future when the demands for fuel in these new and rapidly developing states will be readily supplied within their own borders.

No coal-mining operations were reported at the Tenth Census for Dakota. The reports of production as published by the United States Geological Survey in years past have been mainly estimates. The output of all mines in North and South Dakota during the calendar year 1889 was 28,907 short tons, of which 7,292 tons were from ranchmen's diggings and local mines. The total product was valued at \$41,431.

KANSAS.

The coal measures of Kansas cover an area of about 10,000 square miles, underlying the entire eastern portion of the state. The coals are bituminous in character, similar to the coals of other states in the great Western or Fourth field, and are found to be excellent for coking, steam, gas, smelting, and domestic purposes. Lignite deposits have also been worked to some extent for local trade along the western limits of the coal areas in Cloud, Republic, Ellsworth, Russell, and Jewell counties. Although coal deposits are known to exist in about twenty counties in the state, regular mining operations are conducted in but six, viz, Leavenworth, Franklin, Neosho, Cherokee, Bourbon, and Osage, while in the remaining counties operations are confined to country banks, supplying local trade.

The varying grades of these coals and their excellent quality have attracted attention to this large but hitherto somewhat neglected field, and the output is therefore rapidly increasing.

The principal transportation lines reaching the mines in 1889, as reported to the Eleventh Census, were as follows:

TRANSPORTATION LINES REACHING KANSAS COAL FIELDS.

Chicago, Rock Island and Pacific railway.	Kansas City, Wyandotte and Northwestern railway.
Atchison, Topeka and Santa Fé railroad.	Saint Louis and San Francisco railway.
Missouri Pacific railway.	Kansas City, Fort Scott and Memphis railroad.

The veins vary from one to five feet in thickness, and are mined by shaft as well as by "stripping." The scarcity of wood for fuel in the western part of the state is stimulating the developing of the coal beds as well as the construction of branch railroad lines, to meet the increasing demands of the growing population.

The output for the calendar 1889 is reported to the Census Office as 2,230,763 short tons, valued at \$3,294,754, or an average of \$1.48 per ton at the mines. The average number of persons employed in 1889 was 5,065, and the amount of wages paid, \$2,320,591. The total product reported at the Tenth

Census was 771,442 short tons, valued at \$1,517,444. Total number of employés, 3,617; total amount of wages paid, \$758,980.

The state conducts coal-mining operations upon an extensive scale at Lansing, in Leavenworth county. The convicts in the penitentiary are employed at these mines, and the product, after supplying the state house and public institutions, is sold in the open market.

INDIAN TERRITORY.

The Western or Fourth field, which comprises the only deposits of the carboniferous measures west of the Mississippi river, extends across the boundaries of Kansas, Missouri, and Arkansas into the Indian territory, underlying almost the entire eastern half of that territory. The present developments of importance are along the line of the Missouri, Kansas and Texas railway, in the Choctaw Nation reservation, and are conducted by the Osage Coal and Mining Company at McAlester and the Atoka Mining Company at Lehigh.

The Choctaw Coal and Mining Company is constructing a line of railroad from the Arkansas state line, passing through Oklahoma, to the western boundary of the territory, and southward to Dennison, Texas, intersected by the Saint Louis and Kansas Pacific, the Missouri, Kansas and Texas, the Atchison, Topeka and Santa Fé, and the Chicago, Rock Island and Pacific railroads. This company is engaged in developing a large area of excellent coal territory, lying along the route of the projected railroad, secured by lease from the Choctaw Nation. This enterprise will constitute one of the most important in the southwest.

The quality of the coal now being mined in this territory is excellent for steam and heating purposes, and is well suited for gas and coking. The beds from which the product is obtained range from three to five feet in thickness, and comprise the two lower veins, which are here found to be of much greater thickness and freer from bone and other impurities than in any other part of the field. Competent authorities assert that the coals now being mined in the Indian territory are superior to any found west of the Appalachian field.

The total product in the territory during the calendar year 1889 was 752,832 short tons, valued at \$1,323,806. The average number of persons employed during the year was 1,867; the total wages paid, \$927,267. No report of mining operations in this territory was made for the Tenth Census.

IOWA.

Almost one-half of the state of Iowa is underlaid with coal. The northern extremity of the great Fourth field occupies the southern portion of the state, extending across the southeastern counties of Nebraska, thence southward through Kansas, Missouri, Arkansas, Texas, and Indian territory. Coal is produced in twenty-six counties, and is of a quality generally well adapted for steam and heating purposes. No cannel or gas coal is found in the state.

The quantity of coal produced in Iowa during the census year ending June 30, 1880, from twenty-five counties was 1,461,116 short tons, valued at \$2,507,453 at the mines. The wages paid aggregated \$1,554,696, and the average number of persons employed was 5,024. The total product of all grades during the calendar year 1889 was 4,061,704 short tons, valued at \$5,392,220. The average number of persons employed during the year was 9,198, and the amount of wages paid \$3,903,291.

The principal lines of transportation for the product are as follows:

PRINCIPAL TRANSPORTATION LINES FOR IOWA COAL.

Chicago, Burlington and Quincy railroad.	Keokuk and Western railroad.
Chicago, Milwaukee and Saint Paul railroad.	Chicago and Northwestern railroad.
Iowa Central railroad.	Burlington, Cedar Rapids and Northern railroad.
Wabash railroad.	Chicago, Saint Paul and Kansas City railroad.
Fort Madison and Northwestern railroad.	Des Moines and Kansas City railroad.
Chicago, Rock Island and Pacific railroad.	Mason City and Fort Dodge railroad.
Chicago, Burlington and Kansas City railroad.	Minneapolis and Saint Louis railroad.
Humestown and Shenandoah railroad.	Webster City and Southwestern railroad.
Ottumwa and Kirksville railroad.	

MISSOURI.

Coal is found in thirty-nine counties in Missouri, the deposit being a part of what is known as the Fourth field, underlying portions of Iowa, Nebraska, Kansas, Missouri, Arkansas, and the Indian territory.

The geological surveys of the state have not as yet clearly defined the outcroppings of the beds in the several counties, but mining operations have been conducted to a greater or less extent in the territory lying north of the Missouri river from the western boundary to the Mississippi river, and in the counties lying south of the Missouri river, between Kansas City and Jefferson City, and along the western boundary to Jasper and Dade counties. The principal developments are within Adair, Audrain, Barton, Bates, Caldwell, Callaway, Grundy, Henry, Johnson, Lafayette, Macon, Montgomery, Putnam, Randolph, Ray, and Vernon counties.

The character of the coal is semi-bituminous, and is adapted for steam and heating purposes as well as for smithing. Deposits of cannel coal are found in Moniteau and Cooper counties.

The total product of all grades during the calendar year 1889 was 2,567,823 short tons, valued at \$3,478,058 at the mines. The number of persons employed was 6,739, and \$2,546,812 was paid in wages. During the census year 1880 the total product from thirty-five counties was 844,304 short tons, valued at \$1,464,425, furnishing employment to 2,599 persons, to whom \$642,772 were paid in wages.

Shipments are made directly from the mines upon the following-named transportation lines :

TRANSPORTATION LINES FOR MISSOURI COAL.

Kansas City, Fort Scott and Memphis railroad.	Missouri Pacific railroad.
Missouri, Kansas and Texas railroad.	Chicago, Rock Island and Pacific railroad.
Quincy, Omaha and Kansas City railroad.	Kansas City and Southern railroad.
Chicago and Alton railroad.	Chicago, Burlington and Kansas City railroad.
Wabash railroad.	Saint Joseph, Saint Louis and Santa Fé railroad.
Hannibal and Saint Joseph railroad.	Atchison, Topeka and Santa Fé railroad.

In the absence of any established division of the coal-bearing territory of the state into districts the following is submitted for convenience of identification :

MISSOURI COAL DISTRICTS.

DIVISIONS AND COUNTIES.	Districts.	DIVISIONS AND COUNTIES.	Districts.
NORTHEASTERN :		NORTHWESTERN :	
Grundy.....	Trenton.	Nodaway.....	Nodaway River.
Livingston.....	Grand River.	Ray.....	Richmond.
Carroll.....	.....do.	Caldwell.....	Hamilton.
Sullivan.....	Green Castle.		
Linn.....	Yellow Creek.	SOUTHWESTERN :	
Chariton.....	Chariton River.	Lafayette.....	Lexington.
Putnam.....	.....do.	Saline.....	Marshall.
Schuyler.....	.....do.	Johnson.....	Black Water Creek.
Adair.....	.....do.	Bates.....	Rich Hill.
Macon.....	Bevier.	Vernon.....	.....do.
Randolph.....	Huntsville.	Henry.....	Tedbo Creek.
Howard.....	Bonne Femme Creek.	Saint Clair.....	Vista.
Boone.....	Columbia.	Barton.....	Minden.
Callaway.....	Fulton.	Jasper.....	Spring River.
Audrain.....	Vandalia.	Cooper.....	Booneville.
Ralls.....	Lick Creek.	Moniteau.....	Moreau Creek.
Montgomery.....	Lout Re River.	Dade.....	Cedar Creek.
Monroe.....	Salt River.	Cedar.....	.....do.
Shelby.....	.....do.	Morgan.....	Versailles.
EASTERN :			
Saint Louis.....	Saint Louis.		

ARKANSAS.

The coal deposits of Arkansas are located in the western part of the state, upon either side of the Arkansas river, extending, with more or less persistency, between Fort Smith and Little Rock. Mining

operations have been conducted in Sebastian, Logan, Franklin, Crawford, Johnson, and Pope counties. The local districts are known by the following names:

LOCAL COAL DISTRICTS IN ARKANSAS.

The Western or Sebastian County district.	The Philpott district.
The Coal Hill district.	The Ouita district.

The principal lines of transportation for the product are as follows:

PRINCIPAL TRANSPORTATION LINES FOR ARKANSAS COAL.

The Little Rock and Fort Smith railroad.	The Missouri Pacific railroad.
The Saint Louis and San Francisco railroad.	

The coals of Arkansas are variable in quality, and are adapted for steaming, coking, and gas manufacture, and domestic purposes. Coal mining in this state may be said to have begun about the year 1870, but it did not assume commercial importance until about the year 1883. The quantity reported as being mined in the state during the census year ending June 30, 1880, was 14,778 short tons, valued at \$33,535 at the mines. The total number of persons employed was 130, and the total wages paid, \$20,850. The quantity of coal mined in the state during the calendar year 1889 was 279,584 short tons, valued at \$395,836; the number of persons employed, 588, and the total wages paid, \$205,009.

TEXAS.

The principal body of bituminous coal in Texas lies in the northern central portion of the state, extending southwest from the Red river, in Montague county, to the Colorado river. This basin is a continuation of the great Fourth or Western field, of which it forms the southern extremity. It is said to underlie the whole or portions of twenty-five counties, and embraces an area of 12,000 square miles. The only operation of importance in this field in the year 1889 was that of the Texas and Pacific Coal Company in Erath county. The field next in importance in this state lies along the Rio Grande, underlying Webb, Dimmit, Zavalla, Uvalde, Medina, and Maverick counties, known as the Nueces coal field, and embraces about 3,700 square miles. The quality here is variable, differing materially from that of the Central field, the lower measures yielding a fair semi-bituminous product, while the upper measures are somewhat lignitic. The principal developments in this field are at Santa Tomas, in Webb county, and at Eagle Pass, in Maverick county.

An extended area, bounded by lines drawn from Clarksburg, in Red River county, southwesterly to the Rio Grande, and thence northeast to the Sabine river, in Sabine county, is said to contain important deposits of lignite. No developments are reported in this field, except those of the North Texas Coal and Mining Company in Raines county.

The total quantity of coal of all grades mined in Texas during the year 1889 was 128,216 short tons, valued at \$340,617 at the mines. The average number of persons employed during the year was 549, and the amount of wages paid \$256,834.

No report of coal mining in Texas was made at the Tenth Census. The product, disposition, and value of the coal mined during 1889, the average price per ton received, the average number of persons employed, and the total amount paid in wages are shown in the general table.

ROCKY MOUNTAIN REGION.

The coal deposits in what is known as the Rocky Mountain region are embraced in Colorado, Wyoming, Montana, Utah, and New Mexico. Although indications of lignite deposits have been found in Nevada, Idaho, and Arizona, no effort at development has yet been made beyond desultory prospecting. Lignite, bituminous, and anthracite coals are found in the region under consideration. The latter, however, so far as known, is confined to Gunnison and Pitkin counties, in Colorado, and the quality is said to compare favorably with the anthracite of eastern Pennsylvania. The bituminous coals comprise some excellent qualities of coking and gas coals. During the decade since the Tenth Census the development of coal mining in the states and territories named has been intelligently and

vigorously prosecuted, mainly through the instrumentality of the great transcontinental railroad interests. The output increased from about one million tons during the census year ending June 30, 1880, to nearly five million tons in 1889. The product is consumed largely within the states and territories in which it is mined, although, through the constantly increasing facilities for transportation, good markets are being reached in the adjoining states both east and west.

For convenience of identification the following divisions are submitted :

CLASSIFICATION OF THE COAL DISTRICTS IN THE ROCKY MOUNTAIN REGION.
MONTANA.

DIVISIONS AND LOCAL DISTRICTS.	Counties.	DIVISIONS AND LOCAL DISTRICTS.	Counties.
MONTANA.			
EASTERN :		WESTERN - Continued.	
Glendive.....	Dawson.	Medicine Lodge.....	Beaver Head.
Do.....	Custer.	Bozeman.....	Gallatin.
WESTERN :		Sand Coulee.....	Cascade.
Musselshell.....	Fergus.	Milk River.....	Choteau.
Judith.....	do.	Marias.....	do.
Bull Mountain.....	Yellowstone.	Dearborn.....	Lewis and Clarke.
Rocky Fork.....	Park.	Missoula.....	Missoula.
Cinnabar.....	do.		
UTAH.			
Grass Creek.....	Sunmit.	Pleasant Valley.....	Emery.
Pleasant Valley.....	Sanpete.		
WYOMING.			
NORTHERN :		SOUTHERN :	
Tongue River.....	Sheridan.	Seminole.....	Carbon.
Powder River.....	Johnson.	Carbon.....	do.
EASTERN :		Separation.....	do.
New Castle.....	Crook.	SOUTHWESTERN :	
Black Hills.....	do.	Rock Spring.....	Sweetwater.
Feltherman.....	Converse.	Twin Creek.....	Uinta.
Do.....	Natrona.	Almy.....	do.
COLORADO.			
NORTHWESTERN :		SOUTHERN :	
Yampah.....	Routt.	Trinidad.....	Huerfano.
Meeker.....	Rio Blanco.	Do.....	Las Animas.
Glenwood.....	Garfield.	WESTERN :	
Book Cliffs.....	do.	Crested Butte.....	Gunnison.
NORTHERN :		Grand Mesa.....	Mesa.
North Park.....	Larimer.	Do.....	Delta.
Golden.....	Jefferson.	SOUTHWESTERN :	
Louisville.....	Arapahoe.	Durango.....	La Plata.
CENTRAL :		Do.....	Montezuma.
Cañon City.....	Fremont.	San Miguel.....	Dolores.
South Park.....	Park.	Do.....	San Miguel.
Franceville.....	El Paso.		
NEW MEXICO.			
NORTHEASTERN :		CENTRAL :	
Raton.....	Colfax.	Cerrillos.....	Bernalillo.
NORTHWESTERN :		San Pedro.....	Socorro.
San Juan.....	San Juan.	Caballo.....	Sierra.
Gallup.....	Bernalillo.	White Oaks.....	Lincoln.
Do.....	Rio Arriba.		

CALIFORNIA.

Although coal deposits of more or less importance have been discovered in many of the counties of the state west of the Sierras from Siskiyou, in the vicinity of Mount Shasta, in the north, to San Diego in the south, no mining operations upon a commercial scale have been prosecuted except in Amador and Contra Costa counties. Coal was discovered in the Mount Diablo district in 1852, but productive mining was not prosecuted until after the year 1860. This district now furnishes the major portion of the product of the state. The coals of California so far as at present known are all lignitic in character, generally inferior to the coals of Washington and Oregon, and can not compete with the better coals supplied by sea from British Columbia and Australia.

The total product of coal in California during the calendar year 1889 was 121,820 short tons, valued at \$288,232, showing an average price of \$2.31 per ton at the mines. The average number of persons employed during the year was 283, and the total wages paid \$169,649.

Considerable interest has been manifested in recent years in the subject of an adequate fuel supply for the increasing demands of the state, which has resulted in more determined and well-directed research. From the reported recent discoveries of coal beds in various sections of the state the belief exists that the time is not far distant when California will cease to be dependent upon foreign coals for its requirements.

The fuel supply of California has been derived from the following sources during the year 1889:

SOURCES OF COAL CONSUMED IN CALIFORNIA IN 1889.

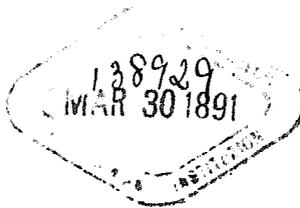
	SHORT TONS.
British Columbia.....	417,904
Australia and Japan.....	409,372
England, Scotland, and Wales.....	45,617
Eastern anthracite and bituminous.....	18,950
Washington.....	372,514
Mount Diablo and Coos bay	87,600
Total.....	1,351,957

OREGON.

Outcroppings of coal have been found in nineteen counties in the state of Oregon both east and west of the Cascade range, but mining operations are reported only in Coos county. These mines are located at Marshfield, on Coos bay, and are operated by the Oregon Coal and Navigation Company. The Coos county field is claimed to cover an area of several hundred square miles, and is a fair quality of lignite. The product is shipped mainly to San Francisco.

WASHINGTON.

The mining of coal in the state of Washington began about the year 1850-51 in the field in the vicinity of Bellingham bay, in the extreme northwestern part of the territory, but operations there were discontinued in 1879, and have not been resumed. Several important coal areas have since been opened up both on the western and eastern slopes of the Cascade range, the most important of which are in the vicinity of Puget sound, in King, Pierce, and Thurston counties, and in Yakima county, near the Attanam river. Outcroppings have been found in other localities, notably at Ellensburg, and in Lincoln and Spokane counties, and also in White Salmon river, in Cascade county. The coals of this state embrace lignite, semi-bituminous, and bituminous varieties, adapted for coking, gas, steam, and domestic purposes. Some specimens of a very fine grade of coal resembling anthracite are reported as having been taken from Cowlitz pass, in Yakima county. The total area of the coal deposits of Washington has not yet been fully determined, but there is no doubt that almost inexhaustible supplies are at hand, not only for the future demand of its own population, but sufficient to furnish a basis for profitable traffic for transportation to the entire Pacific coast. The total product for the calendar year 1889 was 993,724 short tons, valued at \$2,203,755, showing an average of \$2.22 per ton at the mines. The average number of persons employed was 1,847, and the total amount of wages paid was \$1,155,238.



[7-010]

CENSUS BULLETIN.

No. 44.

WASHINGTON, D. C.

March 25, 1891.

Distribution of Population in Accordance with Mean Relative Humidity of the Atmosphere.

DEPARTMENT OF THE INTERIOR,

CENSUS OFFICE,

WASHINGTON, D. C., March 20, 1891.

By the relative humidity of the atmosphere is to be understood the amount of moisture contained in it in proportion to the amount required to saturate it. The amount, of course, varies with the temperature, the higher the temperature the greater the amount of moisture which it is capable of holding in solution. The term is not, therefore, an expression of the absolute amount of moisture.

This factor of climate has marked influence upon certain classes of diseases, particularly pulmonary and throat diseases, and a study of the distribution of the population in accordance with this factor, combined with deaths from pulmonary complaints, will doubtless prove of value in the selection of resorts for those afflicted.

The subject-matter given in this bulletin has been prepared by Mr. HENRY GANNETT, Geographer, special agent of the Census Office.

Robert T. Porter

Superintendent of Census.

Distribution of Population in Accordance with Mean Relative Humidity of the Atmosphere.

BY HENRY GANNETT.

The atmosphere along the Atlantic, Gulf, and Lake coasts and the entire Pacific coast is heavily charged with moisture. It is especially so upon the coast of Oregon and Washington, where the atmosphere is more highly charged with moisture than elsewhere within our territory. The high mountain regions of the Appalachian and to a considerable extent those of the Rocky mountain ranges also have a moist atmosphere. The moisture is less in the Piedmont region east of the Appalachians and in the upper Mississippi valley. Passing across the prairies and the great plains, the amount of moisture in the atmosphere diminishes still more, while the minimum is reached in the Great Basin, in Utah, Nevada, southern Arizona, and southeastern California. In a general way, the amount of moisture in the atmosphere increases and decreases with the rainfall, but this is not always the case. The upper lake region, with an atmosphere as moist as that of Washington city, has a much smaller rainfall. The coast of southern California, with a deficient rainfall, has as moist an atmosphere as the Atlantic coast.

In the following table showing this distribution the population is given to the nearest thousands, as the results aimed at are merely general relations. The first column defines the groups, expressed in percentages of saturation; the second, third, and fourth columns, the absolute number of inhabitants in thousands in the various groups at the Eleventh, Tenth, and Ninth Censuses; the fifth and sixth columns, the percentages of increase; the seventh, eighth, and ninth columns, the percentages of the total population in each group; the tenth, eleventh, and twelfth columns, the number of inhabitants to the square mile in each group.

GROUPS.	POPULATION IN THOUSANDS.			PER CENT OF INCREASE.		PER CENT OF TOTAL POPULATION.			DENSITY.		
	1890.	1880.	1870.	1880-'90.	1870-'80.	1890.	1880.	1870.	1890.	1880.	1870.
Below 50.....	309	219	137	41.10	59.85	0.49	0.44	0.35	1.14	0.80	0.50
50 to 55.....	433	292	91	114.36	121.98	0.69	0.40	0.24	1.44	0.67	0.30
55 to 60.....	291	134	61	117.16	119.67	0.46	0.27	0.16	1.35	0.61	0.28
60 to 65.....	868	439	136	97.72	222.79	1.39	0.87	0.35	2.89	1.46	0.45
65 to 70.....	22,960	19,279	14,388	19.14	33.99	36.68	38.44	37.31	31.45	26.41	20.26
70 to 75.....	34,067	27,280	21,885	24.88	24.65	54.40	54.39	56.76	40.07	32.10	25.74
75 to 80.....	3,341	2,403	1,730	39.03	38.90	5.34	4.79	4.49	14.21	10.22	7.36
Above 80.....	344	200	130	72.00	53.85	0.55	0.40	0.34	5.55	3.22	2.09

A glance at this table shows that nearly all the population breathe an atmosphere containing 65 to 75 per cent of its full capacity of moisture; that is, the atmosphere is from two-thirds to three-fourths saturated. In 1890, 57,036,000 out of 62,622,250 were found in this region; in 1880, 46,559,000 out of 50,155,783, and in 1870, 36,273,000 out of 38,558,371. The number of inhabitants living in a drier atmosphere was at each census comparatively trifling, numbering in 1870 less than half a million, and in 1890 less than two millions. In the moister atmosphere were found larger numbers scattered along the Gulf coast and the shores of Washington and Oregon.

The most rapid increase has been found at the top and bottom of the scale, and particularly in the more arid region, where the population has nearly doubled during each of the last two periods.



CENSUS BULLETIN

No. 45.

WASHINGTON, D. C.

March 26, 1891.

MINES AND MINING.—GRANITE.

DEPARTMENT OF THE INTERIOR,

CENSUS OFFICE,

WASHINGTON, D. C., March 14, 1891.

In order that the information may be made accessible as promptly as possible, the following report on the granite industry of the United States, by Dr. WILLIAM C. DAY, special agent, is published as a bulletin from the Division of Mines and Mining of the Census Office, under the supervision of Dr. DAVID T. DAY, special agent in charge of the division.

The report shows the production of granite in the several states and the rank of the states in this industry, the characteristics of granite in the different localities, the labor, wages, and capital concerned, the uses for granite and the amount consumed for each, the methods by which granite is quarried, and other interesting information, together with a complete directory of granite producers in the United States.

The total value of the output for the production of granite for the calendar year ending 1889 was \$14,464,095, while according to the census of 1880 it was only \$5,188,998, showing a gain of \$9,275,097, or 179 per cent. The four most productive states according to the census of 1890 were Massachusetts, Maine, California, and Connecticut, in the order named, and the four states having the greatest percentage increase of productiveness since 1880 are Minnesota, New York, Delaware, and Georgia.

Superintendent of Census.

GRANITE INDUSTRY OF THE UNITED STATES.

BY WILLIAM C. DAY.

Of the various kinds of stone quarried in the United States granite is capable of the widest application when all the uses to which stone is put are considered. This statement applies, of course, not only to uses in which strength, power to resist disintegration, and permanency are essential, but also to those in which natural beauty and susceptibility to ornamentation and high polish are necessarily taken into account. (a)

The purposes to which granite is now applied are much more numerous than they were a comparatively few years ago. The increase in the wealth of the country at large, as well as of individuals, has had much to do with this, especially in connection with those involving ornamentation and fine finish. The great hardness of the stone, and the consequent difficulty with which it is cut and polished, make it when entirely finished decidedly expensive. Among wealthy people its costliness frequently determines its selection in preference to other kinds of stone, simply because the high price is an indication that nothing better can be had.

In this report the term "granite" is made to cover a much greater variety of stones than the strictly scientific use of the name would allow; in other words, it is used in its commercial rather than in its scientific sense. At the same time it is true that the great bulk of the granite herein reported is true granite of one subvariety or another. This broad classification is adopted for the purpose of making the report more significant, and, consequently, more valuable to stone producers, who in their business do not, as a rule, make fine distinctions between one kind of granite and another. Although variations in the nature and proportions of the minerals which constitute the granites have much to do in determining the adaptability of the stone to many purposes, still this fact is not made prominent by granite quarrymen in placing their products on the market. If by actual use a particular granite is found to do well for a certain purpose, it is, in general, correspondingly well received without inquiry as to its special constitution, which in reality determines its adaptability for such purpose.

The following list gives a general idea of the geographical distribution of granite, and indicates most of the particular kinds that have been or are now being quarried in the various localities mentioned:

ARKANSAS.

Hornblende-biotite granite. Pulaski county.
Ekaolite syenite. Garland county.

CALIFORNIA.

Biotite granite. Placer county.
Hornblende-biotite granite. Placer and Sacramento counties.
Hornblende granite. Placer county.
Quartz diorite. Placer county.
Basalt. Solano, Sonoma, and Alameda counties.
Andesite. Shasta county.
Andesitic tufa. Solano county.
Quartz porphyry. San Bernardino county.
Basaltic tufa. Tehama county.

COLORADO.

Biotite granite. Clear Creek and Jefferson counties.

COLORADO—continued.

Muscovite gneiss. Clear Creek county.
Diorite. Chaffee county.
Rhyolite. Chaffee and Conejos counties.
Rhyolitic tufa. Douglas county.
Basalt. Jefferson county.

CONNECTICUT.

Biotite granite. Litchfield, New Haven, New London, and Fairfield counties.
Muscovite-biotite granite. Litchfield county.
Muscovite-biotite gneiss. Litchfield county.
Biotite gneiss. Litchfield, New Haven, New London, Windham, Tolland, and Hartford counties.
Hornblende-biotite gneiss. Middlesex and Fairfield counties.
Diabase. New Haven county.

a Special acknowledgments are due to Mr. Walter B. Smith, of Levant, Maine, special agent, for his valuable field notes in reference to granite and his assistance in the tabulation and final preparation of this report.

DELAWARE.

Augite-hornblende gneiss...New Castle county.

GEORGIA.

Muscovite granite.....De Kalb county.
Hornblende-biotite gneiss...Fulton county.

MAINE.

Biotite granite.....Knox, York, Washington, Lincoln, Waldo, Oxford, Kennebec, and Hancock counties.
Biotite gneiss.....Lincoln, Franklin, and Androscoggin counties.
Muscovite-biotite granite...Kennebec, Waldo, and Franklin counties.
Hornblende-biotite granite...Penobscot and Knox counties.
Hornblende granite.....Hancock county.
Olivine diabase.....Washington county.
Diabase.....Washington and Knox counties.

MARYLAND.

Biotite granite.....Baltimore, Howard, and Montgomery counties.
Biotite gneiss.....Cecil and Baltimore counties.
Gabbro.....Baltimore county.

MASSACHUSETTS.

Hornblende granite.....Norfolk and Essex counties.
Hornblende-biotite granite...Essex county.
Epidote granite.....Norfolk county.
Biotite granite.....Norfolk, Middlesex, Bristol, Worcester, and Plymouth counties.
Biotite-muscovite granite...Worcester and Berkshire counties.
Biotite gneiss.....Franklin county.
Muscovite gneiss.....Middlesex, Essex, Worcester, and Hampden counties.
Diabase.....Middlesex and Hampden counties.
Melaphyre.....Suffolk county.

MINNESOTA.

Hornblende granite.....Sherburne, Benton, and Lake counties.
Hornblende-mica granite...Benton county.
Quartz porphyry.....Lake and Saint Louis counties.
Diabase.....Saint Louis county.
Olivine diabase.....Chisago county.
Gabbro.....Saint Louis county.

MISSOURI.

Hornblende-biotite granite...Iron and Saint François counties.
Granite.....Iron county.
Olivine diabase.....Iron county.

MONTANA.

Hornblende-mica granite...Lewis and Clarke county.

NEVADA.

Hornblende andesite.....Washoe county.

NEW HAMPSHIRE.

Biotite-muscovite granite...Merrimaack, Cheshire, Hillsborough, Grafton, Sullivan, and Strafford counties.
Biotite granite.....Cheshire, Hillsborough, Grafton, and Rockingham counties.
Hornblende-biotite granite...Carroll county.
Muscovite-biotite gneiss...Cheshire and Hillsborough counties.
Biotite-epidote gneiss.....Grafton county.

NEW JERSEY.

Biotite gneiss.....Passaic county.
Hornblende granite.....Morris county.
Diabase.....Hudson county.

NEW YORK.

Biotite granite.....Putnam county.
Hornblende-mica granite...Jefferson county.
Norite.....Essex county.
Biotite gneiss.....Westchester and Rockland counties.

NORTH CAROLINA.

Biotite granite.....Warren, Franklin, Gaston, Granville, Alamance, Davidson, Mecklenburg, Iredell, Forsyth, Guilford, Richmond, and Anson counties.
Muscovite granite.....Warren county.
Granite.....Rowan and Orange counties.
Biotite-muscovite granite...Rowan county.
Hornblende-biotite granite...Mecklenburg county.
Biotite gneiss.....Cleveland, McDowell, Caldwell, Wilson, Stokes, Iredell, Wake, and Guilford counties.
Hornblende gneiss.....Burke county.

OREGON.

Granite.....Jackson and Columbia counties.
Diabase.....Linn county.
Basalt.....Clackamas and Columbia counties.
Andesite.....Multnomah county.

PENNSYLVANIA.

Biotite gneiss.....Philadelphia and Delaware counties.
Muscovite gneiss.....Philadelphia and Berks counties.
Biotite-muscovite gneiss...Delaware county.
Diabase.....Adams, York, Berks, and Lancaster counties.
Diorite.....Berks county.
Hornblende gneiss.....Philadelphia county.

RHODE ISLAND.

Biotite granite.....Washington, Kent, and Providence counties.
Granite.....Washington county.
Biotite gneiss.....Providence county.
Hornblende gneiss.....Providence county.

SOUTH CAROLINA.

Biotite granite.....Fairfield, Charleston, Aiken,
Lexington, Richland, Edge-
field, and Newberry coun-
ties.

Hornblende-biotite granite. Fairfield county.

SOUTH DAKOTA.

Granite.....Minnehaha county.

TEXAS.

Biotite granite.....Burnet county.

Diorite.....El Paso county.

UTAH.

Hornblende-biotite granite. Salt Lake and Weber counties.

VERMONT.

Biotite granite.....Washington and Essex coun-
ties.

Muscovite granite.....Windsor county.

VERMONT—continued.

Biotite-muscovite granite...Caledonia county.
Gabbro.

VIRGINIA.

Biotite granite.....Dinwiddie, Chesterfield, and
Henrico counties.

Muscovite granite.....Spottsylvania county.

Biotite gneiss.....Campbell county.

Biotite schist.....Fauquier county.

Diabase.....Loudoun and Fauquier coun-
ties.

WASHINGTON.

Granite.....Stevens county.

WISCONSIN.

Granite.....Marquette county.

Hornblende granite.....Marathon county.

Quartz porphyry.....Green Lake county.

Biotite gneiss.....Jackson county.

PRODUCTION.

The table of production, pages 9 and 10, shows by states the general condition of the granite industry. Granite was produced in twenty-eight states, ten more than were included in the Tenth Census report. The total value of the output of the United States in 1889 was \$14,464,095, while according to the census of 1880 the total value amounted to \$5,188,998, a gain of \$9,275,097, or 179 per cent, in the decade.

The following table shows the relative standing, according to value of output, of the various productive states in 1880 and 1889:

RANK OF STATES ACCORDING TO THE VALUE OF GRANITE PRODUCT.

	TENTH CENSUS.		ELEVENTH CENSUS.	
	STATES.	Value of output.	STATES.	Value of output.
	Total.....	\$5,188,998	Total.....	\$14,464,095
1	Massachusetts.....	1,329,315	Massachusetts.....	2,503,504
2	Maine.....	1,175,286	Maine.....	2,225,839
3	Rhode Island.....	623,000	California.....	1,329,618
4	Connecticut.....	467,225	Connecticut.....	1,064,202
5	Virginia.....	331,928	Rhode Island.....	931,216
6	New Hampshire.....	303,036	Georgia.....	752,481
7	Maryland.....	224,000	New Hampshire.....	727,531
8	Pennsylvania.....	211,454	Pennsylvania.....	623,252
9	California.....	172,450	Vermont.....	581,870
10	Missouri.....	110,000	Missouri.....	500,642
11	New Jersey.....	93,000	Maryland.....	447,489
12	Georgia.....	64,480	New Jersey.....	425,673
13	Vermont.....	53,675	Minnesota.....	356,782
14	Colorado.....	41,400	Virginia.....	332,518
15	Minnesota.....	13,675	Colorado.....	314,674
16	Delaware.....	12,600	South Dakota.....	304,673
17	New York.....	10,000	Wisconsin.....	266,095
18	Washington.....	1,044	New York.....	222,773
19			Delaware.....	211,194
20			North Carolina.....	146,627
21			South Carolina.....	47,614
22			Oregon.....	44,150
23			Texas.....	22,550
24			Utah.....	8,700
			Other states (a).....	76,000

a The states here grouped, in order that the business of individual establishments may not be disclosed to the public, embrace Arkansas, Montana, Nevada, and Washington.

It will be seen from the foregoing table that Massachusetts and Maine hold the same relative positions, namely, one and two, that they did in 1880, and that to hold these positions the increase in value of output has been very great. A very notable increase in production has raised California from ninth place in the Tenth Census to third place in the Eleventh. Rhode Island has dropped from third to fifth place, thus putting it below Connecticut, which, by more than doubling its output, maintains fourth place. The production in Virginia has changed but very little in the last ten years, so that, remaining constant in value of output, its position in the series has dropped from fifth to fourteenth place. In the case of Georgia a very striking increase raises it from twelfth to sixth place, thus placing it one position above the "Granite state," New Hampshire. The increase in production in Georgia is largely due to the extensive operations at Stone Mountain, near Atlanta, which were begun only a few years ago. Operations in New Hampshire have resulted in an output of more than twice the value of that reported in 1880, but, nevertheless, it has fallen from sixth to seventh place. It is probable that the output in this state during 1890 will show a decided gain, owing to the fulfillment of a number of extensive contracts for Concord granite which have been recently made. Pennsylvania, by nearly tripling its output, maintains eighth place. The great increase in production in California is due to operations at the Folsom granite quarries. The granite produced at this locality is largely used on the spot in constructing a dam to be utilized by the Folsom Water Power Company. It has also been applied to the construction of a canal and the buildings of the power house of the state prison, located near the quarries. This work was done chiefly by convict labor. In Sonoma county granite is extensively quarried for paving blocks. This stone is really basalt, and has given unmistakable satisfaction for paving purposes. Most of the paving blocks of the state come from this county. Missouri maintains tenth place, but as compared with the Tenth Census figures the value of the output is more than quadrupled. This increase is due to extended operations at Graniteville, in Iron county, where a so-called red granite is produced, which has become quite popular in a number of large cities for building purposes. Colorado is in fifteenth place in the Eleventh Census. The growth in this state is due to increased activity in Douglas county, at points thirty to thirty-five miles south of Denver, where the variety known as rhyolite, commonly called lava stone, is produced. Remarkable activity is evident in Minnesota. The output in 1880 was comparatively insignificant, whereas that for 1889 amounts to nearly \$357,000. This notable increase is due chiefly to operations in Sherburne and Stearns counties, in the vicinity of Saint Cloud, and also at Sauk Rapids, in Benton county. Minnesota has made a stride in advance which will probably be permanent. Sixteenth place in the series is now held by South Dakota. Operations in this state date back only a few years, but have developed rapidly. The most important producing locality is Sioux Falls, Minnehaha county, the product being sold under the commercial name of Sioux Falls granite. Indications point to the conclusion that South Dakota will hold its position in the series for some time to come. Although Delaware has fallen from sixteenth to nineteenth place, the increase in production is very remarkable, namely, from \$12,600 in 1880 to \$211,194 in 1889. New York, with a product of \$10,000 in granite in 1880, shows an increase to \$222,773 in 1889. No figures for North Carolina appear in previous reports, but at present it holds twentieth place, with an output valued at \$146,627. South Carolina and Texas, neither of which appears in previous reports, give indications of promising future developments, although the present output is not great. Arkansas, although holding next to last place in the list of states for 1889, will doubtless show a much greater output in the course of a few years, owing to developments already made in the vicinity of Little Rock of what is known as Fourche Mountain granite, which is, strictly speaking, syenite.

The table on the following page is presented for the sake of comparing the eighteen states which were productive in 1880 with those of 1889, from which it appears that 94 per cent of the total value of the product of 1889 is the value of stone taken from the same states reported at the Tenth Census. In other words, the ten states added during the past decade have contributed only 6 per cent of the value of the total output of the country.

COMPARISON OF GRANITE PRODUCT IN STATES PRODUCTIVE IN 1880 AND 1889.

STATES.	VALUE OF OUTPUT.		STATES.	VALUE OF OUTPUT.	
	1880.	1889.		1880.	1889.
Total.....	\$5,188,998	\$13,557,686	Missouri.....	\$10,000	\$500,642
Massachusetts.....	1,329,315	2,501,503	New Jersey.....	99,000	425,673
Maine.....	1,175,286	2,225,829	Georgia.....	61,480	752,481
Rhode Island.....	623,000	931,216	Vermont.....	59,075	581,870
Connecticut.....	407,225	1,061,292	Colorado.....	41,400	314,673
Virginia.....	331,928	332,548	Minnesota.....	13,075	356,782
New Hampshire.....	303,066	727,531	Delaware.....	12,600	211,194
Maryland.....	224,000	447,489	New York.....	10,000	222,773
Pennsylvania.....	211,454	623,252	California and Washington.....	173,394	1,339,018

From this comparison it is evident that the increase in production of states reported by the Tenth Census amounts to \$8,368,688, or 161 per cent. These tables did not include figures pertaining to quarries producing less than \$1,000 worth of stone in the census year, and inasmuch as the figures for the present census include all quarries regardless of magnitude, the following table, showing the aggregates of granite quarries producing in each case less than \$1,000 worth in 1889, may be found of interest. It is evident that the total value of stone produced from these minor quarries is small, amounting to only \$28,145, or two-tenths of one per cent of the total output.

TOTALS FROM GRANITE QUARRIES PRODUCING LESS THAN \$1,000 WORTH OF STONE IN 1889.

STATES.	Value.	Wages.	Total expenses.	Total capital.
Total.....	\$28,145	\$24,268	\$30,227	\$108,195
California.....	1,750	1,325	1,526	4,680
Colorado.....	225	280	305	11,329
Connecticut.....	5,267	2,485	3,102	6,959
Delaware.....	700	390	1,008	5,029
Georgia.....	887	2,510	2,781	3,129
Iowa.....	400	100	800	829
Maine.....	9,791	6,881	8,705	21,085
Massachusetts.....	2,909	1,761	2,541	11,929
Minnesota.....	338	1,237	1,353	3,759
New Jersey.....	680	3,075	3,241	6,759
North Carolina.....	350	110	110	65
Pennsylvania.....	4,745	4,294	4,755	28,805

It is noteworthy that the total expenses involved in the production of the granite reported in this table exceed the total value by over \$2,000. This is accounted for by the fact that many of these small enterprises were new, and probably in many cases short-lived.

GEOGRAPHICAL DISTRIBUTION.

For convenience, the country may be divided into three sections: Eastern, Middle, and Western. The first includes the following states, named in order of the value of the product: Massachusetts, Maine, Connecticut, Rhode Island, Georgia, New Hampshire, Pennsylvania, Vermont, Maryland, New Jersey, Virginia, New York, Delaware, North Carolina, and South Carolina; the Middle section includes Missouri, Minnesota, South Dakota, Wisconsin, and Arkansas; the Western embraces California, Colorado, Montana, Oregon, Texas, Washington, Utah, and Nevada. From the following table the value of the output of the Eastern section is seen to be \$11,240,812, or 77.71 per cent of the whole; that of the Middle section, \$1,433,192, or 9.91 per cent of the entire output, and of the Western section, \$1,790,091, or 12.38 per cent. In short, the great bulk of the granite output comes from the vicinity of the eastern coast of the United States. Intermediate between the Eastern and the Middle sections is a continuous belt of states, extending from the northern to the southern boundaries of the United States, which is at present totally unproductive of granite. This section includes the states of Michigan, Iowa, Illinois, Indiana, Ohio, Kentucky, West Virginia, Tennessee, Mississippi, Louisiana, and Alabama.

VALUE OF GRANITE PRODUCED IN THE UNITED STATES IN 1889.

SECTIONS.	Value of product.
Total.....	\$14,464,095
Eastern section.....	\$11,240,812
Middle section.....	1,433,192
Western section.....	1,790,091

Further subdividing the Eastern section into two portions, northern and southern, the former including only the New England states and the latter all states south of them, it appears that the New England states produced \$8,031,161 worth, or 55.52 per cent of the entire output of the country. In 1880 the same states produced 75.11 per cent of the total.

The following table shows the percentage of gain in each of the states, arranged in order of greatest gain, which were productive both in 1880 and 1889 :

PERCENTAGE INCREASE OF STATES PRODUCTIVE IN 1880.

STATES.	Per cent.	STATES.	Per cent.
Minnesota.....	2,628.73	New Jersey.....	329.97
New York.....	2,127.73	Pennsylvania.....	194.75
Delaware.....	1,576.14	Connecticut.....	160.59
Georgia.....	1,067.00	New Hampshire.....	140.06
Vermont.....	875.06	Maryland.....	99.77
Washington.....	857.85	Maine.....	89.39
California.....	670.67	Massachusetts.....	88.33
Colorado.....	660.03	Rhode Island.....	49.47
Missouri.....	355.13	Virginia.....	0.19

The following table, arranged alphabetically by states, gives all totals relative to the granite output for the calendar year 1889. Considering the totals for the United States, it appears that something over sixty-two million cubic feet of granite, having a total value in round numbers of \$14,500,000, were produced by 22,313 workmen from 874 quarries. To this number of men over \$9,600,000 in wages were paid. The total expense of producing the entire granite output amounts to over \$11,500,000, thus indicating a profit to the producers of about \$3,000,000. The total capital invested is over \$19,000,000, of which something more than one-half is the value of land.

PRODUCTION OF GRANITE IN THE UNITED STATES FOR THE CALENDAR YEAR 1889, BY STATES.

STATES.	Number of firms producing in 1889.	Number of quarries.	PRODUCT.		LABOR.							POWER.			
			Cubic feet.	Total value.	Average number of employes.							Number of boilers.	Total horse power of boilers.	Total horse power of water wheels.	Number of animals employed.
					Foremen.	Quarrymen.	Mechanics and stonecutters.	Laborers.	Boys under sixteen years.	Office force.	Total number employed.				
Total	814	874	62,287,156	\$14,464,695	815	10,006	6,585	4,342	343	222	22,313	556	15,119	80	2,980
California	76	76	4,761,411	1,329,018	64	1,165	316	225	21	12	1,805	41	1,026		139
Colorado	10	10	2,677,465	314,673	12	151	13	32		5	213	3	20		39
Connecticut	49	53	3,835,701	1,061,202	43	694	600	251	10	32	1,630	47	1,101		202
Delaware	5	5	1,386,431	211,194	9	166	67	6	2	3	253	15	352		13
Georgia	24	28	2,425,622	752,481	35	442	352	482	51	5	1,367	15	777		98
Maine	133	153	6,701,346	2,225,839	110	1,453	1,611	483	53	27	3,737	65	1,723	80	501
Maryland	22	23	3,371,632	447,489	26	513	97	171	30	9	846	24	470		202
Massachusetts	148	151	9,587,996	2,503,503	130	1,613	903	613	30	38	3,333	123	2,947		484
Minnesota	10	23	558,200	356,782	18	223	230	64	10	4	558	10	253		32
Missouri	9	10	1,264,317	500,642	16	228	263	79	19	12	617	19	662		79
New Hampshire	77	78	2,822,026	727,531	83	519	487	148	8	8	1,253	37	771		286
New Jersey	20	23	6,374,575	425,673	20	214	57	319	12	5	627	21	1,060		49
New York	13	13	1,515,511	222,773	19	134	108	130	7	3	401		215		60
North Carolina	19	22	708,267	146,627	13	110	91	149	22	6	391	9	182		46
Oregon	4	4	287,400	44,150	2	32	9	10	1		51				2
Pennsylvania	62	64	5,782,887	623,252	47	562	200	377	11	10	1,297	37	1,246		164
Rhode Island	35	37	2,878,237	931,216	38	313	614	294	12	14	1,195	30	879		256
South Carolina	7	9	214,479	47,614	3	40	28	25	2	1	99	5	74		2
South Dakota	3	3	786,120	201,673	13	93	143	153	3	3	498	3	82		26
Texas	8	8	20,400	22,550	3	27	19	13	1	1	64	3	72		10
Utah	3	3	123,500	8,700	2	8	2	4	1	1	18				1
Vermont	46	53	1,073,936	561,870	60	596	155	128	13	9	961	17	497		131
Virginia	13	13	1,703,206	322,548	21	333	61	229	24	8	716	17	370		46
Wisconsin	5	8	1,385,600	266,095	17	345	84	28		4	478	15	340		14
Other states (a)	4	4	41,488	76,000	5	32	36	9		2	84				8

(a) The states here grouped, in order that the business of individual establishments may not be disclosed to the public, embrace Arkansas, Montana, Nevada, and Washington.

PRODUCTION OF GRANITE IN THE UNITED STATES FOR THE CALENDAR YEAR 1889, BY STATES—CONTINUED.

STATES.	EXPENSES.				CAPITAL INVESTED.				
	Total wages, including salaries paid to office force.	Value of supplies and materials consumed.	All other expenditures for the quarry, such as rent, taxes, interest, insurance, etc.	Total expenses incurred in producing entire amount of granite.	In hand.	In buildings and fixtures.	In tools, live stock, machinery, and supplies on hand.	In cash.	Total capital.
Total.....	\$9,620,485	\$1,446,485	\$437,051	\$11,504,021	\$10,897,417	\$1,580,784	\$3,731,078	\$2,906,170	\$19,115,449
California.....	899,295	131,837	32,234	973,276	1,926,095	124,075	402,348	377,276	2,829,794
Colorado.....	192,700	15,815	5,685	214,180	255,350	20,550	20,385	19,200	315,485
Connecticut.....	697,080	76,047	40,073	813,200	348,600	89,225	262,945	191,119	891,880
Delaware.....	116,216	61,765	10,741	191,662	13,200	4,255	52,869	94,921	104,545
Georgia.....	396,461	56,807	18,839	472,107	1,267,474	28,235	103,415	82,498	1,481,622
Maine.....	1,517,029	252,071	54,879	1,823,976	1,377,735	292,613	698,801	823,168	3,192,317
Maryland.....	275,596	61,352	14,961	351,909	386,850	26,665	77,379	149,554	640,448
Massachusetts.....	1,630,128	278,056	65,545	1,973,729	1,099,563	212,645	567,703	355,848	2,235,759
Minnesota.....	276,859	14,569	3,639	295,067	142,627	17,305	52,936	81,350	294,218
Missouri.....	319,298	55,173	21,286	425,667	460,500	35,100	64,000	33,500	633,100
New Hampshire.....	529,945	52,573	14,973	597,491	366,100	86,380	164,850	144,032	761,363
New Jersey.....	294,281	52,513	3,847	350,641	115,700	15,150	178,400	109,600	418,850
New York.....	182,831	26,515	7,814	217,160	288,300	50,000	44,750	39,650	422,700
North Carolina.....	101,134	20,915	1,888	123,937	120,777	24,758	102,265	7,330	255,130
Oregon.....	29,860	5,150	2,023	37,033	48,000	500	12,100		60,600
Pennsylvania.....	441,231	56,135	19,557	516,923	525,178	155,937	149,891	99,400	930,409
Rhode Island.....	618,043	113,572	57,634	789,249	279,770	54,035	226,646	85,941	646,392
South Carolina.....	22,843	2,488	9,697	35,028	90,634	7,775	34,866	10,000	143,275
South Dakota.....	216,773	1,461	3,995	222,229	288,200	79,528	66,838	10,000	444,566
Texas.....	29,464	7,100	6,174	42,738	184,600	11,975	15,350	1,700	212,125
Utah.....	7,696	100	50	7,846	8,000	5,100	2,650	3,000	18,750
Vermont.....	498,916	48,792	19,496	477,114	683,164	63,741	95,630	125,215	967,750
Virginia.....	218,828	32,297	5,000	256,125	234,900	20,946	89,236	101,568	446,650
Wisconsin.....	221,493	39,292	10,006	261,791	144,700	151,691	236,022	14,000	646,413
Other states (a).....	45,725	10,300	7,065	63,090	242,000	3,500	8,800	7,000	261,300

(a) The states here grouped, in order that the business of individual establishments may not be disclosed to the public, embrace Arkansas, Montana, Nevada, and Washington.

The following table is presented for the purpose of showing by states as well as for the entire country the distribution of granite for the various important purposes to which it is applied. It will be seen that the purposes considered are as follows: building; street work; cemetery, monumental, and decorative purposes; bridge, dam, and railroad work, and miscellaneous uses. This table will be found of particular interest to quarrymen and others who have reason to be interested in statistics relative to the amount and value of stone used for different purposes. In order that the general uses named above may be understood in detail, the following list is presented:

BUILDING PURPOSES.

Solid fronts.	Lintels.	Pilasters.
Foundations.	Broken range.	Belting or belt courses.
Cellar walls.	Sills.	Rubble.
Underpinning.	Kiln stone.	Range.
Steps.	Capping.	Ashlar.
Buttresses.	Columns.	Forts.
Window sills.	Plinths.	Dimension.

STREET WORK

Paving blocks.	Road making—	Basin heads or catch-basin corners.
Belgian blocks	(a) Macadam.	Sledged stone.
Curbing.	(b) Telford.	Crushed stone.
Flagging	(c) Concrete.	Breaker dust.

CEMETERY, MONUMENTAL, AND DECORATIVE PURPOSES.

Statues.	Gravestone sockets.	Mausoleums.
Monuments (entire).	Grave markers.	Urns.
Monument bases.	Cemetery posts.	Wainscoting.
Monument dies.	Cemetery rails.	Dados.
Monument shafts.	Cemetery coping.	Fountains.

BRIDGE, DAM, AND RAILROAD WORK.

Culverts.	Buttresses.	Riprap.
Aqueducts.	Bridge covering.	Approaches.
Dams.	Capstone.	Towers.
Wharf stone.	Rails.	Bank stone.
Breakwater.	Ashlar.	Parapets.
Jetties.	Ballast.	Docks.
Piers.		

MISCELLANEOUS.

Millstones.	Posts.	Refuse stone.
Levelers—rollers.	Engine and machine beds.	Block granite.
Grout.	Random.	Boundary stone.
Walls (fences).	Yard stock.	Horse blocks.
Watering troughs.		

AMOUNTS AND VALUES OF GRANITE ACCORDING TO THE PURPOSES FOR WHICH IT WAS USED.

STATES.	Number of quarries.	BUILDING PURPOSES.			STREET WORK.					
		Cubic feet.	Value.	Value per cubic foot.	Cubic feet, including paving blocks.	Value, including paving blocks.	Value per cubic foot.	Number of paving blocks.	Value of paving blocks.	Value per thousand.
Total.....	874	26,147,338	\$6,166,634	\$0.24	20,683,221	\$1,456,891	\$0.22	61,822,871	\$2,978,172	\$18.17
California.....	76	496,352	419,816	0.85	3,284,232	351,613	0.17	7,393,321	297,236	40.70
Colorado.....	10	2,620,419	294,356	0.11	1,100	230	0.21			
Connecticut.....	53	2,358,286	758,915	0.32	567,860	169,261	0.19	761,100	40,683	53.45
Delaware.....	5	229,066	32,443	0.14	155,500	67,262	0.43	194,333	8,298	78.67
Georgia.....	28	700,939	347,100	0.50	658,602	250,634	0.38	1,593,952	84,951	53.10
Maine.....	153	1,819,741	839,125	0.46	3,736,541	927,919	0.25	17,704,915	824,113	46.55
Maryland.....	23	1,578,872	263,491	0.17	1,051,010	125,958	0.12	286,950	10,310	35.93
Massachusetts.....	151	6,643,703	1,362,451	0.21	1,475,993	466,147	0.32	6,196,016	378,627	62.01
Minnesota.....	23	211,548	209,396	0.99	338,640	141,554	0.42	1,239,000	68,045	54.92
Missouri.....	10	110,468	219,518	1.99	871,269	216,986	0.25	4,323,130	216,986	50.19
New Hampshire.....	78	1,306,331	324,567	0.25	1,157,962	252,256	0.22	2,643,739	87,569	42.85
New Jersey.....	23	324,150	42,175	0.13	2,089,796	236,310	0.11	3,999,912	168,555	42.14
New York.....	13	1,078,203	149,700	0.14	247,962	51,062	0.21	587,120	26,962	45.92
North Carolina.....	22	63,637	33,327	0.52	221,820	42,605	0.19	775,000	34,200	44.13
Oregon.....	4	63,000	6,300	0.10	117,400	30,200	0.26	587,000	30,200	51.45
Pennsylvania.....	61	2,370,875	143,231	0.06	1,996,486	368,223	0.18	3,836,127	241,733	63.03
Rhode Island.....	37	2,349,711	266,400	0.11	213,477	65,817	0.31	781,765	45,817	58.61
South Carolina.....	9	25,777	8,130	0.32	94,489	34,016	0.36			
South Dakota.....	3	185,120	133,978	0.72	601,000	170,635	0.28	3,017,500	170,634	56.57
Texas.....	8	19,700	21,000	1.07						
Utah.....	3	122,000	8,310	0.07						
Vermont.....	53	236,759	45,198	0.19	231,128	48,323	0.21	883,006	45,643	51.69
Virginia.....	13	1,080,873	120,467	0.11	286,916	75,925	0.26	342,895	18,665	53.97
Wisconsin.....	8	100,360	40,640	0.40	1,285,000	223,825	0.17	5,540,000	170,075	32.32
Other states (a).....	4	41,488	76,000	1.83						

a The states here grouped, in order that the business of individual establishments may not be disclosed to the public, embrace Arkansas, Montana, Nevada, and Washington.

AMOUNTS AND VALUES OF GRANITE ACCORDING TO THE PURPOSES FOR WHICH IT WAS USED—CONTINUED.

STATES.	CEMETERY, MONUMENTAL, AND DECORATIVE PURPOSES.			BRIDGE, DAM, AND RAILROAD WORK.			MISCELLANEOUS USES.			Total number of cubic feet.	Total value.
	Cubic feet.	Value.	Value per cubic foot.	Cubic feet.	Value.	Value per cubic foot.	Cubic feet.	Value.	Value per cubic foot.		
Total.....	2,106,953	\$2,371,911	\$1.13	12,207,244	\$1,238,401	\$0.10	1,142,397	\$230,858	\$0.20	62,287,156	\$14,464,096
California.....	85,927	115,114	1.34	879,900	237,475	0.27	15,000	5,000	0.33	4,761,411	1,329,018
Colorado.....	55,946	20,087	0.36							2,677,465	314,673
Connecticut.....	148,198	111,155	0.75	571,031	65,659	0.11	190,419	16,212	0.09	3,835,704	1,061,202
Delaware.....				995,982	110,849	0.11	5,883	700	0.12	1,386,431	211,194
Georgia.....	189,655	47,997	0.25	876,425	106,750	0.12				2,425,622	762,481
Maine.....	231,972	299,158	1.29	856,786	145,117	0.17	56,306	14,490	0.26	6,701,346	2,225,839
Maryland.....	31,100	19,410	0.62	710,050	38,630	0.05				3,371,032	447,489
Massachusetts.....	509,687	497,438	0.98	252,288	33,040	0.13	707,825	144,427	0.20	9,587,996	2,503,503
Minnesota.....	5,312	4,277	0.81	2,700	1,555	0.58				558,200	356,782
Missouri.....	120	500	4.17	282,529	63,638	0.23				1,264,317	500,642
New Hampshire.....	151,711	135,029	0.89	110,467	8,409	0.08	95,525	7,270	0.08	2,822,026	727,531
New Jersey.....	250	125	0.50	3,360,379	147,063	0.04				6,374,575	423,673
New York.....	121,906	17,261	0.14	67,500	4,750	0.07				1,515,511	222,773
North Carolina.....	25,106	23,345	0.93	378,500	44,240	0.12	19,144	3,110	0.16	708,267	146,627
Oregon.....	2,000	2,350	1.18	105,000	5,300	0.05				287,400	41,150
Pennsylvania.....	15,050	5,725	0.38	1,583,976	101,473	0.07	7,500	4,500	0.60	5,782,887	623,252
Rhode Island.....	110,310	588,199	5.33	204,739	10,800	0.05				2,878,237	931,216
South Carolina.....	4,213	2,528	0.60	90,000	2,940	0.03				214,479	47,614
South Dakota.....										786,120	304,673
Texas.....	700	1,550	2.21							20,400	22,550
Utah.....	600	390	0.65							123,500	8,700
Vermont.....	373,029	412,287	1.11	197,834	41,713	0.21	35,195	34,349	0.98	1,073,936	581,870
Virginia.....	44,620	66,356	1.49	281,167	69,000	0.25	9,600	800	0.08	1,703,206	332,548
Wisconsin.....	240	1,630	6.79							1,385,600	266,095
Other states (a).....										41,488	70,000

a The states here grouped, in order that the business of individual establishments may not be disclosed to the public, embrace Arkansas, Montana, Nevada, and Washington.

Owing to the fact that operations have been under way for only a short period of time, a number of the states named in the table have produced but limited amounts of stone. These states are as follows: Arkansas, Montana, Nevada, South Carolina, Oregon, Texas, Utah, and Washington. Figures representing the value per unit of the product from such states as these can not be regarded as strictly normal; that is to say, the values are in general decidedly higher than those for states in which production has been going on actively for a number of years. The industry being new in these states, and transportation charges on stone from a distance high, it is of course to be expected that a higher price can be obtained than in other states in which competition on stone locally produced is active. The most valuable of the figures representing values per unit are those for states in which the quarrying industry has long been established, such as Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Vermont, Virginia, and Wisconsin. Considerable variation in the values per unit for these states is evident, and this is due to differences in the quality of the stone and its degree of finish and the transportation charges to which a competing material from a distance would be subjected.

Considering the subject of paving blocks, the value per thousand is found to vary from \$32.32 in Wisconsin to \$78.67 in Delaware. In the most important states which produce paving blocks, namely, California, Maine, Massachusetts, Missouri, New Jersey, and Pennsylvania, the value varies from \$40 to something over \$60 per thousand. The variation in the price for these states, in all of which the production of paving blocks has been going on for some time, is due to the quality of the stone used for these purposes, and also to the special care observed in trimming blocks to certain definite sizes. In some localities surface rock of inferior quality is broken up into paving blocks,

which are sold at low prices. In a number of cities considerable care is taken by municipal authorities in the selection of paving material. This care is exercised both with reference to the quality of stone and to invariability of size, and consequently the price paid is in some cases markedly higher than that paid in other cities more indifferent in regard to the material employed.

Considering cemetery purposes, a very wide variation in price exists, ranging all the way from 14 cents a cubic foot in New York, where comparatively little of such work is done, to \$6.79 in Wisconsin, where also very little, indeed, was done, amounting perhaps to only two or three contracts; so that the reasons for these extremes in prices are at once apparent. In Rhode Island the average price reaches the high figure of \$5.33 per cubic foot, which results from the fact that most of the stone used for these purposes in Rhode Island comes from Westerly, and is unusually well adapted for such work; and, further, the ornamentation and finish put upon the Westerly granite is of a very high order.

The value per unit of the product used for bridge, dam, and railroad work is naturally low, although it shows considerable variation.

Comparing the grand totals for the various purposes, it appears that of the entire output of the country \$6,000,000 worth, or something less than half, is devoted to building purposes, and a little less than one-third to street work, of which more than half is the value of paving blocks. The value of the stone devoted to cemetery, monumental, and decorative purposes is about one-sixth of the entire amount, but its value per cubic foot, namely \$1.13, is naturally vastly in excess of the value per unit of the stone used for any other purpose. Something less than one-tenth of the value of the output is devoted to bridge, dam, and railroad work, while the value for miscellaneous uses is quite small.

Comparing the various states, it appears that for building purposes the value of the product in Massachusetts is decidedly in advance of that for any other state, Maine standing second, Connecticut third, and California fourth. In street work Maine is largely in the lead, California taking second place, while Massachusetts, which for total production heads the whole list, stands third. In connection with cemetery and monumental work it is interesting to notice that Rhode Island stands at the head of the list, the value of its output amounting to nearly \$600,000, Massachusetts coming second, and Vermont third. In Massachusetts and Vermont, respectively, the leading localities producing fine ornamental work are Quincy, in Massachusetts, and Barre, in Vermont. In the latter locality production, although carried on to a limited extent in 1880, has largely developed within the past ten years. In value of granite devoted to bridge, dam, and railroad work California stands first, New Jersey second, Maine third, Delaware fourth, and Georgia fifth.

LABOR.

The table on page 15 includes figures relative to the average wages received and the average number of days employed by the various classes of workmen connected with granite quarrying. Considering the daily wages paid to foremen, it is noticeable that among those states in which the granite industry has long been prosecuted the average is fairly constant, varying from \$3 in Virginia to \$3.41 in New Hampshire. In the western states the average is markedly higher, being \$4.34 in California, \$3.67 in Minnesota, and \$4.34 in Wisconsin. The foremen employed in western states naturally come in great part from the old established quarry regions of the east, and their services therefore command a higher figure in these comparatively undeveloped regions. This statement, together with the fact of increased cost of living, accounts for the higher wages paid in these states. Very much the same condition is found to exist with the other classes of labor, quarrymen, for example, in California receiving \$2.38; in Colorado, \$2.50, and in Utah, \$3. In the older granite-producing states wages for quarrymen amount to about \$1.75 per day, but in the southern states the amount is invariably less. In connection with mechanics, it will be noticed that the number in Maine is almost twice as great as that in Massachusetts. This great difference has been found to be due to the respective methods of classification of mechanics in these two states. In Maine it is a common practice to include stonecutters among mechanics, whereas in Massachusetts engineers, blacksmiths, and the like make up the number of

mechanics. It is interesting to note in this connection that the average value per cubic foot of the total output in Maine is 33 cents, while for Massachusetts it is 26 cents; in other words, a greater output of finished product in Maine than in Massachusetts is indicated, and therefore this serves to explain the greater number of mechanics in the former than in the latter state. Wages for laborers in most of the states are not far from \$1.50 per day, although low figures are noticeable for the southern states. The highest figures paid are in the western states, as, for example, \$2.11 in California and \$1.96 in Colorado. In regard to the number of boys under sixteen years of age employed in connection with the granite industry, it is noted that Maine employs nearly twice as many as Massachusetts. The total number, however, for the whole United States is only three hundred and forty-three. As an explanation of this, it may be stated that in Maine there are a great many small quarries operated by farmers. After the farm work is practically done for the year, attention is devoted to the development of such quarry property as may be included in these farms. Maine and Georgia together employ one hundred and four boys, or nearly one-third of the total number employed in the United States. The wages paid to boys vary considerably, being less than \$1 per day, although in a few cases this amount is exceeded.

It will be noticed that the total wages reported in the table on page 10 as actually paid do not exactly agree with the figures which would result from computing the total wages from the data given in the table on page 15. This is very naturally the case, since the figures of the latter table are the averages given by the producers in response to an inquiry calling for average statements. The figures for total wages actually paid are exact.

The table on page 16 gives the relative standing of the various states according to the value of output and the purposes for which the product was used.

The table on page 17 shows the relative standing according to the number of cubic feet and purposes. It will be observed that the relative standing is quite variable, according to the various uses.

The table on page 18 gives the states in the order of their relative importance with respect to a number of different statistical items. It will be noticed that this order varies considerably. Thus, while Massachusetts and Maine hold first and second places, respectively, both with reference to the value of output as well as the number of cubic feet, New Jersey is third when the number of cubic feet is considered, whereas its position with respect to value of output is twelfth. Inspection of this table will reveal at a glance a number of interesting features which would require some time and labor to extract from the principal table relative to production, in which all these items are contained. The most important of these items in determining the true relative standing of the states is, of course, the value of the output, but for persons specially interested in granite the other items will undoubtedly be found of interest and value. Considering the capital invested in land, Massachusetts and Maine, instead of holding first and second places, respectively, drop to fourth and second places, while California heads the list. Exceedingly high values have been placed on some quarry property, for the reason that the area included was very large, while the value per acre may not have been excessive. It is true that in many places in the west large areas of land have been bought up for the sake of controlling the production of the granite contained in it; and while but a small portion of this area may have been actually worked for granite, still, as land was purchased as quarry property, the purchasers are justified in representing as invested in quarry land all that was paid for the tract, even though it was very large. The reason for such large purchases of land in undeveloped portions of the country is evidently to cut off possible competition by monopolizing the best territory. Thus Texas, which stood in twenty-third place with regard to value of output in 1889, holds sixteenth place according to the capital invested in land.

LABOR AND WAGES CLASSIFIED.

STATES.	FOREMEN.				QUARRYMEN.				MECHANICS.				LABORERS.				BOYS UNDER SIXTEEN YEARS.				OFFICE FORCE ^a .	
	Average number.	Average daily wages.	Average number of days.	Average yearly earnings.	Average number.	Average daily wages.	Average number of days.	Average yearly earnings.	Average number.	Average daily wages.	Average number of days.	Average yearly earnings.	Average number.	Average daily wages.	Average number of days.	Average yearly earnings.	Average number.	Average daily wages.	Average number of days.	Average yearly earnings.	Average number.	Average salary.
California.....	64	\$4.34	214	\$928.76	1,165	\$2.38	217	\$746.46	316	\$3.32	215	\$736.80	225	\$2.11	104	\$400.34	21	\$1.95	230	\$241.50	12	\$1,111.11
Colorado.....	12	3.42	292	686.84	151	2.50	214	535.00	13	2.98	239	712.22	232	1.96	228	446.88	10	0.80	147	126.42	5	908.67
Connecticut.....	43	3.15	245	765.45	694	1.70	230	391.00	600	2.67	217	639.40	271	1.48	232	343.36	10	0.80	147	126.42	32	761.22
Delaware.....	9	3.27	242	791.34	168	1.68	229	380.14	67	3.82	232	634.24	6	1.30	240	300.00	2	0.50	239	115.00	3	1,268.67
Georgia.....	85	3.72	295	906.96	442	1.39	222	301.92	352	3.50	218	782.62	482	1.65	231	342.56	51	0.62	224	138.88	3	933.33
Maine.....	110	3.15	215	677.25	1,453	1.78	177	315.06	1,611	3.40	220	547.80	483	1.62	187	292.94	53	0.92	149	137.08	27	938.75
Maryland.....	23	3.00	232	696.00	513	1.51	244	368.44	963	3.02	247	745.94	171	1.34	196	262.64	30	0.65	221	143.65	9	677.78
Massachusetts.....	136	3.00	248	758.32	1,613	1.76	221	388.96	963	3.50	247	639.73	613	1.50	240	360.00	30	0.71	224	139.04	38	911.21
Minnesota.....	18	3.67	294	748.68	223	1.81	196	369.64	229	3.54	206	729.24	61	1.57	200	314.00	10	1.07	198	211.86	4	900.00
Missouri.....	16	3.10	220	701.80	228	1.74	219	381.66	263	3.15	190	626.85	79	1.48	185	273.80	19	0.65	229	148.50	12	808.98
New Hampshire.....	83	3.41	170	576.70	519	1.75	178	311.50	487	3.00	223	579.80	148	1.68	163	273.84	8	1.30	166	139.20	8	755.00
New Jersey.....	20	2.47	259	617.50	244	1.66	231	381.15	37	2.19	228	521.22	319	1.43	224	320.32	12	0.75	300	235.00	5	500.00
New York.....	19	2.91	245	712.95	134	1.87	200	374.00	108	2.92	178	519.76	130	1.71	258	441.18	7	0.79	185	146.15	3	970.00
North Carolina.....	13	2.52	241	697.32	110	1.12	208	232.96	91	1.82	197	368.54	149	0.84	202	169.68	22	0.35	192	67.29	6	684.00
Oregon.....	2	5.00	200	1,000.00	32	2.50	213	582.50	9	3.00	211	633.00	10	2.00	229	440.00	1	1.00	150	150.00	10	693.75
Pennsylvania.....	47	2.36	183	446.04	562	1.75	187	327.25	200	2.64	200	528.00	377	1.37	182	249.34	11	0.75	210	153.20	14	1,047.38
Rhode Island.....	28	3.55	255	854.25	313	1.84	212	390.68	614	2.46	257	632.42	294	1.54	227	343.58	12	0.69	218	150.42	1	345.00
South Carolina.....	3	5.75	222	1,276.50	40	0.95	181	171.85	28	2.08	213	634.74	25	0.78	28	21.84	2	0.25	203	68.25	1	345.00
South Dakota.....	13	3.50	313	1,050.50	36	2.00	200	400.00	143	4.60	200	800.00	153	1.30	200	260.08	3	1.00	233	235.00	3	1,268.67
Texas.....	5	2.50	200	500.00	27	1.57	116	172.70	19	3.82	157	485.14	13	1.17	224	282.08	1	1.00	150	150.00	1	200.00
Vermont.....	60	3.68	292	743.96	596	1.75	186	325.50	155	2.64	216	570.24	138	1.45	170	216.50	13	1.00	209	200.00	1	200.00
Virginia.....	21	3.00	240	720.00	333	1.22	189	230.58	91	3.61	222	579.42	239	1.08	216	233.28	24	0.47	184	86.48	8	834.43
Wisconsin.....	17	4.34	204	1,298.34	345	1.70	274	465.80	84	3.00	216	607.44	28	1.37	156	213.72	24	0.47	184	86.48	4	630.00
Other states (a).....	5	5.77	188	1,081.76	32	2.66	162	430.92	36	4.75	151	717.25	9	1.81	80	161.60	2				2	500.00

^a The states here grouped, in order that the business of individual establishments may not be disclosed to the public, embrace Arkansas, Montana, Nevada, and Washington.

RELATIVE STANDING OF STATES ACCORDING TO VALUE AND PURPOSES.

	BUILDING PURPOSES.		STREET WORK (INCLUDING PAVING BLOCKS).		PAVING BLOCKS.		CEMETERY, MONUMENTAL, AND DECORATIVE PURPOSES.		BRIDGE, DAM, AND RAILROAD WORK.		MISCELLANEOUS USES.	
	States.	Value.	States.	Value.	States.	Value.	States.	Value.	States.	Value.	States.	Value.
Total		\$6,168,664	Total	\$4,456,891	Total	\$2,978,172	Total	\$2,371,911	Total	\$1,298,401	Total	\$230,858
1 Massachusetts		1,302,451	Maine	927,949	Maine	824,113	Rhode Island	583,199	California	237,475	Massachusetts	144,427
2 Maine		839,125	California	551,613	Massachusetts	378,627	Massachusetts	497,438	New Jersey	147,063	Vermont	34,349
3 Connecticut		758,915	Massachusetts	466,147	California	297,236	Vermont	412,287	Maine	145,117	Connecticut	16,212
4 California		419,816	Pennsylvania	368,223	Pennsylvania	241,793	Maine	299,158	Delaware	110,849	Maine	14,490
5 Georgia		347,100	New Hampshire	252,256	Missouri	216,986	New Hampshire	135,029	Georgia	106,780	New Hampshire	7,270
6 New Hampshire		324,567	Georgia	250,834	Wisconsin	179,075	California	115,114	Pennsylvania	101,473	California	5,000
7 Colorado		294,356	New Jersey	238,310	South Dakota	170,694	Connecticut	111,165	Virginia	69,000	Pennsylvania	4,500
8 Rhode Island		266,400	Wisconsin	222,825	New Hampshire	168,555	Georgia	66,356	Connecticut	65,659	North Carolina	3,110
9 Maryland		263,491	Missouri	216,980	Georgia	84,951	Virginia	47,997	Missouri	63,638	Virginia	800
10 Missouri		219,518	South Dakota	170,695	Minnesota	68,645	North Carolina	23,345	North Carolina	44,240	Delaware	700
11 Minnesota		209,386	Minnesota	141,564	Rhode Island	45,817	Colorado	20,087	Vermont	41,713		
12 New York		149,700	Maryland	125,938	Vermont	45,643	Maryland	19,410	Maryland	38,639		
13 Pennsylvania		143,231	Virginia	109,261	Connecticut	40,683	New York	17,261	Massachusetts	33,040		
14 South Dakota		133,978	Virginia	75,925	North Carolina	34,240	Pennsylvania	5,725	Rhode Island	10,800		
15 Virginia		120,467	Delaware	67,292	North Carolina	30,240	Minnesota	4,277	New Hampshire	8,409		
16 Vermont		45,188	Rhode Island	65,817	Oregon	26,962	Oregon	2,528	Oregon	5,300		
17 New Jersey		42,175	New York	51,062	New York	13,505	South Carolina	2,350	New York	4,750		
18 Wisconsin		40,640	Vermont	48,323	Virginia	10,310	Wisconsin	1,630	South Carolina	2,940		
19 North Carolina		33,327	North Carolina	42,605	Maryland	8,208	Texas	1,550	Minnesota	1,555		
20 Delaware		32,443	South Carolina	34,016	Delaware		Missouri	500				
21 Texas		21,000	Oregon	30,200			Utah	300				
22 Utah		8,310	Colorado	230			New Jersey	125				
23 South Carolina		8,130										
24 Oregon		6,300										
Other states (a)		75,000										

a The states here grouped, in order that the business of individual establishments may not be disclosed to the public, embrace Arkansas, Montana, Nevada, and Washington.

RELATIVE STANDING OF STATES ACCORDING TO NUMBER OF CUBIC FEET AND PURPOSES.

BUILDING PURPOSES.	ALL CLASSES OF STREET WORK.		PAVING BLOCKS.		CEMETERY, MONUMENTAL, AND DECORATIVE PURPOSES.		BRIDGE, DAM, AND RAILROAD WORK.		MISCELLANEOUS USES.	
	States.	Cubic feet.	States.	Number.	States.	Cubic feet.	States.	Cubic feet.	States.	Cubic feet.
Total.....		26,147,338	Total.....	61,822,871	Total.....	2,106,983	Total.....	12,207,244	Total.....	1,142,307
1 Massachusetts.....		6,643,703	Maine.....	17,704,915	Massachusetts.....	509,087	New Jersey.....	3,960,379	Massachusetts.....	707,825
2 Colorado.....		2,620,419	California.....	7,303,321	Vermont.....	373,020	Pennsylvania.....	1,383,976	Connecticut.....	190,419
3 Pennsylvania.....		2,379,875	Massachusetts.....	6,106,016	Maine.....	231,972	Delaware.....	995,982	New Hampshire.....	95,325
4 Connecticut.....		2,358,286	Wisconsin.....	5,516,000	Georgia.....	189,655	California.....	873,900	Maine.....	56,368
5 Rhode Island.....		2,349,711	Missouri.....	4,323,130	New Hampshire.....	151,711	Georgia.....	876,425	Vermont.....	35,195
6 Maine.....		1,819,741	New Jersey.....	3,969,912	Connecticut.....	148,108	Maine.....	895,788	North Carolina.....	19,144
7 Maryland.....		1,578,872	Pennsylvania.....	3,839,127	New York.....	121,906	Maryland.....	710,050	California.....	15,000
8 New Hampshire.....		1,306,331	South Dakota.....	3,917,500	Rhode Island.....	110,310	Connecticut.....	571,031	Virginia.....	9,000
9 Virginia.....		1,080,873	New Hampshire.....	2,043,739	California.....	85,927	North Carolina.....	378,500	Pennsylvania.....	7,500
10 New York.....		1,078,205	Georgia.....	1,399,332	Virginia.....	55,446	Missouri.....	282,529	Delaware.....	5,883
11 Georgia.....		700,939	South Dakota.....	1,239,000	Colorado.....	44,620	Virginia.....	281,107		
12 California.....		496,352	Connecticut.....	883,096	Maryland.....	31,100	Massachusetts.....	282,288		
13 New Jersey.....		234,150	Minnesota.....	1,239,000	North Carolina.....	25,106	Rhode Island.....	294,739		
14 Vermont.....		230,759	Vermont.....	883,096	Pennsylvania.....	15,050	Vermont.....	197,834		
15 Delaware.....		229,066	Virginia.....	776,000	Minnesota.....	5,312	New Hampshire.....	110,467		
16 Minnesota.....		211,548	New York.....	761,000	South Carolina.....	4,213	Oregon.....	105,000		
17 South Dakota.....		185,120	Connecticut.....	587,120	Texas.....	2,000	South Carolina.....	90,000		
18 Utah.....		132,900	Vermont.....	587,000	Utah.....	600	New York.....	67,500		
19 Missouri.....		110,468	Rhode Island.....	342,895	New Jersey.....	250	Minnesota.....	2,704		
20 Wisconsin.....		100,369	Delaware.....	286,350	Wisconsin.....	250				
21 North Carolina.....		63,697	Colorado.....	104,333	Missouri.....	120				
22 Oregon.....		63,000								
23 South Carolina.....		25,777								
24 Texas.....		19,709								
Other states (a).....		4,488								

a The states here grouped, in order that the business of individual establishments may not be disclosed to the public, embrace Arkansas, Montana, Nevada, and Washington.

RELATIVE STANDING OF STATES ACCORDING TO VARIOUS STATISTICAL ITEMS.

TOTAL NUMBER OF CUBIC FEET PRODUCED.		TOTAL VALUE OF PRODUCTION.		TOTAL CAPITAL INVESTED IN LAND.		TOTAL CAPITAL.	
States.	Cubic feet.	States.	Value.	States.	Amount.	States.	Amount.
Total	62,287,156	Total	\$14,461,095	Total	\$10,897,417	Total	\$19,115,449
1 Massachusetts	9,587,996	Massachusetts	2,503,503	California	1,926,095	Maine	3,192,317
2 Maine	6,701,316	Maine	2,225,839	Maine	1,377,735	California	2,829,794
3 New Jersey	6,374,575	California	1,329,018	Georgia	1,267,474	Massachusetts	2,235,769
4 Pennsylvania	5,782,887	Connecticut	1,061,202	Massachusetts	1,099,593	Georgia	1,481,622
5 California	4,761,411	Rhode Island	931,216	Vermont	683,164	Vermont	967,760
6 Connecticut	3,865,704	Georgia	752,481	Pennsylvania	525,178	Pennsylvania	930,409
7 Maryland	3,371,032	New Hampshire	727,531	Missouri	460,500	Connecticut	891,889
8 Rhode Island	2,878,237	Pennsylvania	623,252	Maryland	386,850	New Hampshire	761,362
9 New Hampshire	2,822,026	Vermont	581,870	New Hampshire	366,100	Rhode Island	646,392
10 Colorado	2,677,465	Missouri	500,642	Connecticut	348,600	Maryland	640,448
11 Georgia	2,425,622	Maryland	447,489	New York	288,300	Missouri	593,100
12 Virginia	1,703,206	New Jersey	425,673	South Dakota	288,200	Wisconsin	546,413
13 New York	1,515,511	Minnesota	356,782	Rhode Island	279,770	Virginia	446,650
14 Delaware	1,385,431	Virginia	332,548	Colorado	255,350	South Dakota	444,566
15 Wisconsin	1,285,600	Colorado	314,673	Virginia	234,900	New York	422,700
16 Missouri	1,264,317	South Dakota	304,673	Texas	184,000	New Jersey	418,850
17 Vermont	1,073,956	Wisconsin	266,095	Wisconsin	144,700	Colorado	315,485
18 South Dakota	786,120	New York	222,773	Minnesota	142,627	Minnesota	294,218
19 North Carolina	708,267	Delaware	211,194	North Carolina	120,777	North Carolina	255,130
20 Minnesota	558,290	North Carolina	146,627	New Jersey	115,700	Texas	212,125
21 Oregon	287,400	South Carolina	47,614	South Carolina	90,634	South Carolina	143,275
22 South Carolina	214,479	Oregon	44,150	Oregon	48,000	Delaware	101,545
23 Utah	123,500	Texas	22,550	Delaware	13,200	Oregon	69,600
24 Texas	20,400	Utah	8,700	Utah	8,000	Utah	18,760
Other states (a)	41,488	Other states	76,000	Other states	242,000	Other states	261,300

TOTAL NUMBER OF EMPLOYÉS.		TOTAL AMOUNT OF WAGES PAID EMPLOYÉS.		TOTAL COST OF SUPPLIES.		TOTAL EXPENSE.	
States.	Number.	States.	Amount.	States.	Amount.	States.	Amount.
Total	22,313	Total	\$9,620,485	Total	\$1,446,485	Total	\$11,504,021
1 Maine	3,737	Massachusetts	1,630,128	Massachusetts	278,056	Massachusetts	1,973,729
2 Massachusetts	3,333	Maine	1,517,026	Maine	252,071	Maine	1,823,976
3 California	1,803	California	809,205	California	131,827	California	973,276
4 Connecticut	1,630	Connecticut	697,080	Rhode Island	113,572	Connecticut	813,200
5 Georgia	1,367	Rhode Island	618,013	Connecticut	76,047	Rhode Island	789,219
6 New Hampshire	1,253	New Hampshire	529,945	Delaware	64,705	New Hampshire	597,491
7 Pennsylvania	1,207	Pennsylvania	441,231	Maryland	61,352	Pennsylvania	516,923
8 Rhode Island	1,195	Vermont	408,916	Georgia	56,807	Vermont	477,114
9 Vermont	961	Georgia	396,461	Pennsylvania	56,135	Georgia	472,107
10 Maryland	846	Missouri	349,208	Missouri	55,173	Missouri	425,667
11 Virginia	716	New Jersey	294,284	New Hampshire	52,573	Maryland	351,909
12 New Jersey	627	Minnesota	276,859	Vermont	48,762	New Jersey	330,644
13 Missouri	617	Maryland	275,566	New Jersey	32,513	Minnesota	265,007
14 Minnesota	558	Wisconsin	221,493	Virginia	32,297	Wisconsin	261,791
15 Wisconsin	478	Virginia	218,828	Wisconsin	30,292	Virginia	256,125
16 South Dakota	408	South Dakota	216,773	New York	26,515	South Dakota	222,229
17 New York	401	Colorado	192,790	North Carolina	20,915	New York	217,160
18 North Carolina	391	New York	182,831	Colorado	15,815	Colorado	214,180
19 Delaware	253	Delaware	116,216	Minnesota	14,509	Delaware	191,662
20 Colorado	213	North Carolina	101,134	Texas	7,100	North Carolina	123,937
21 South Carolina	99	Oregon	29,860	Oregon	5,150	Oregon	37,033
22 Texas	64	South Carolina	22,843	South Carolina	2,488	South Carolina	35,028
23 Oregon	54	Texas	20,461	South Dakota	1,461	Texas	33,738
24 Utah	18	Utah	7,696	Utah	100	Utah	7,846
Other states (a)	84	Other states	45,725	Other states	10,300	Other states	63,030

a The states here grouped, in order that the business of individual establishments may not be disclosed to the public, embrace Arkansas, Montana, Nevada, and Washington.

The following table gives a number of deductions from the figures of the table on production, such as the percentages of profit on capital, and also on sales in the different states. It will be noticed that in a few instances loss is reported, but in all these cases the operations have been quite limited and only recently begun. Initial operations in the quarrying industry are invariably attended by loss for some time after making the first opening, due to the considerable amount of stripping which is inevitable in almost every case. To this statement there are occasional exceptions, among which may be specially noted the granite obtained from Stone mountain, in Georgia, where no stripping is necessary, and even the surface stone is suitable for the manufacture of paving blocks, to which purpose alone it is applied. This is also true of a number of New England quarries. It will be noticed that in the older productive states the percentages of profit on capital and sales are fairly constant. The cost per cubic foot of the total product shows a decided variation, as would, of course, be expected from the complexity of the causes involved, such as ease or difficulty of quarrying, quality of stone, transportation facilities, cost of labor, and the great variation in the amount of manufacturing done upon the rough product. In the matter of the proportion which wages bear to the total expense of production, it will be seen that in nearly all cases this is above 80 per cent, and in a few cases it constitutes almost the entire item of expense. In regard to the amount of wages paid per cubic foot, it should be borne in mind that these wages include all paid on the product up to the time it was sold by the producer, and inasmuch as it has been sold in all stages of finish, there is a correspondingly great variation in the wages paid per unit. Excessively high figures were paid in several western states in which production is just beginning, and in each of which there are only a very few operators. In the matter of ratio of wages to total value, the figures for the various states, except in those states where actual loss occurred, do not show a very great variation.

GENERAL DEDUCTIONS.

STATES.	Total number of cubic feet.	Total value of product.	Total wages.	Total expenses.	Total capital.	PERCENTAGE OF PROFIT OR LOSS.		Cost of product per cubic foot.	Percentage of wages to total expense.	Wages paid per cubic foot.	Percentage of wages to total value.	Value per cubic foot.
						On capital.	On value of products.					
Total.....	62,287,166	\$14,464,095	\$9,620,485	\$11,504,021	\$19,115,449	15.40	20.46	\$0.18	83.63	\$0.15	66.51	\$0.23
California.....	4,761,411	1,329,018	809,205	973,276	2,829,794	12.57	26.77	0.20	83.14	0.17	69.89	0.28
Colorado.....	2,677,465	314,673	192,700	214,180	315,485	31.85	31.94	0.08	89.97	0.07	61.24	0.12
Connecticut.....	3,835,704	1,061,202	697,080	813,200	861,889	27.81	23.37	0.21	85.72	0.18	65.69	0.28
Delaware.....	1,386,431	211,194	116,216	191,662	164,545	18.68	9.25	0.14	66.64	0.08	55.66	0.15
Georgia.....	2,425,622	752,481	396,461	472,107	1,481,622	18.92	37.26	0.19	83.98	0.16	52.69	0.31
Maine.....	6,701,346	2,225,849	1,517,026	1,823,976	3,192,317	12.59	18.05	0.27	84.17	0.23	68.16	0.23
Maryland.....	3,371,032	447,489	275,566	351,909	649,448	11.92	21.36	0.16	78.31	0.08	61.58	0.13
Massachusetts.....	9,587,996	2,563,503	1,639,128	1,973,729	2,235,759	23.70	21.16	0.21	82.59	0.17	65.11	0.26
Minnesota.....	558,200	356,782	276,859	295,007	264,218	21.90	17.51	0.53	59.85	0.59	77.09	0.64
Missouri.....	1,264,317	500,642	349,208	425,667	563,109	12.64	14.98	0.34	82.04	0.28	69.75	0.40
New Hampshire.....	2,822,026	727,531	529,945	597,431	761,362	17.08	17.87	0.21	88.70	0.19	72.84	0.26
New Jersey.....	6,374,575	425,673	294,284	339,644	418,850	22.69	22.32	0.65	89.00	0.65	69.13	0.97
New York.....	1,515,511	222,773	182,831	217,199	422,700	1.33	2.52	0.14	84.19	0.12	82.07	0.15
North Carolina.....	708,267	146,627	101,134	123,937	255,139	8.89	15.47	0.17	81.60	0.14	68.97	0.21
Oregon.....	287,400	44,150	29,869	37,023	69,690	11.74	16.12	0.13	80.63	0.10	67.63	0.15
Pennsylvania.....	5,782,887	623,252	441,231	516,323	939,499	11.43	17.06	0.09	85.56	0.08	79.79	0.11
Rhode Island.....	2,878,237	931,216	618,013	789,219	616,392	21.97	15.25	0.27	78.31	0.21	66.57	0.32
South Carolina.....	214,479	47,614	23,843	35,028	143,275	8.78	26.43	0.16	65.21	0.11	47.98	0.22
South Dakota.....	780,120	304,673	216,773	222,229	444,566	18.54	27.06	0.28	97.54	0.28	71.15	0.39
Texas.....	20,400	22,550	20,464	33,738	212,125	65.27	849.61	1.05	69.66	1.00	99.75	1.11
Utah.....	123,500	8,700	7,696	7,816	18,759	4.55	9.82	0.06	98.09	0.06	88.46	0.07
Vermont.....	1,073,936	581,870	498,916	477,114	967,750	19.82	18.00	0.41	85.71	0.38	79.28	0.54
Virginia.....	1,703,203	332,518	218,828	256,125	416,650	17.11	22.98	0.15	85.41	0.13	65.89	0.20
Wisconsin.....	1,385,600	266,095	221,493	261,791	546,413	9.79	1.62	0.19	81.61	0.16	83.24	0.19
Other states (a).....	41,488	76,000	45,725	63,030	261,300							

a The states here grouped, in order that the business of individual establishments may not be disclosed to the public, embrace Arkansas, Montana, Nevada, and Washington.

b Loss.

METHODS OF QUARRYING GRANITE.

STRUCTURE OF GRANITE IN PLACE.—The successful and economical working of granite quarries depends upon an intelligent application of a knowledge of the structure of the rock and its natural divisions in the mass, as well as upon improved methods, tools, and machinery for quarrying. The topographical location of the quarry and its relation to facilities for transportation are important factors that affect the productiveness and greatly modify the actual cost of operations in a given place.

In regions of great dynamic movement, such as most granite localities possess, very large rock masses without seams or fissures do not occur; but these fractures, extending as they do in certain definite directions to each other in the mass, form systems of inchoate joints, which divide it into roughly rectangular and rhombic forms, thus rendering valuable assistance to the quarryman. It is probable that the fissures were caused by pressure operating in certain directions during the origin or uplifting of the rock, and it is even possible for it to have been sufficient to change the molecular arrangement of the component minerals. Even those granites which are apparently normal, and which reveal no traces of stratification or parallel arrangement of mica or hornblende, are found by quarrymen and stonemasons to split more easily and with a smoother surface in one or more directions than in others. An unequal pressure operating on the mass would have caused certain directions or lines of weakness and account for this, or it may have produced the apparent rearrangement of the feldspar crystals, as found in a few of the granites.

In northern New England particularly most of the fissures, as revealed by quarry openings, are slightly curved, parallel partings conforming in general to the direction of the slope upon which the quarry may be located. They produce a sheeted arrangement of the rock, which bends in ridges or curves in hilltops like anticlinal or quaquaversal folds of sedimentary strata. In addition to these divisional planes there occur one or more systems of vertical joints, the joints of each system running approximately parallel to each other, though the systems cross at varying angles.

It is interesting to note that the direction of easiest cleavage, called by quarrymen the "rift," is parallel to the most numerous natural fractures, and that at right angles to this another direction of cleavage, called the "grain," is parallel to the system having the next greatest number of joints. When the rift of the rock in place is horizontal, or more nearly horizontal than perpendicular, it is customarily called the "lift." The grain, although important, is not generally an eminent feature, and its direction may remain unknown even for a long time after the quarry is opened. These systems of fracture, and the unequal ease of splitting in different directions, are points generally well understood and advantageously used by experienced granite workers.

OPENING THE QUARRY.—Granite quarries are nearly always started in natural outcroppings of the ledge, but as they are entirely open workings, and necessarily cover large areas, considerable development work is needed at first and from time to time, as the quarry is enlarged, in stripping or clearing away the timber and soil and in removing the weathered portions or cap rock. It sometimes happens, especially in the northeastern region, that a ledge is found showing sound granite at the top, ready for quarrying, having been ground smooth by glacier movement and left bare of soil; but usually long exposed outcroppings have a softer outer portion, called "sap," resulting chiefly from the partial decomposition of the feldspar. This also occurs to a less extent along the seams and fissures, and where the rock contains iron the sap is stained by its oxidation to a brownish or reddish color. The sap may be merely a thin coating, scarcely discernible, or it may be that the rock is rendered unsound for thirty feet or more in depth, as is the case with a certain coarse-grained granite occurring in the Rocky mountains. The observation of such points in the field will serve as indications of the probable durability of the stone and the stability of its color.

BLASTING.—Owing to great diversity in the structure of the rocks classed here as granite, the operations of quarrying necessarily vary considerably, even in different openings of the same region. The object desired is, however, the same in all, namely, the removal of large rectangular blocks with the least outlay of time and labor compatible with keeping the quarry in good

working shape and avoiding waste. Ordinarily, to break the rock into sizes which can be handled, blasting is necessary. In doing this the object is to direct the force of the powder so that it may break the rock in the desired direction without shattering either the piece removed or the standing rock, but it can be successful only when it is detached at the ends and bottom and has a chance to move out in front. As the rift in the rock in the majority of quarries approaches the horizontal the first breaks are obviously made either with or across the grain. The method most generally used for doing this is called "lewis-ing," from the shape of the blast hole. A lewis hole is made by drilling close together holes about an inch and a half in diameter and in breaking down the partition between them by means of a flat steel bar, called a "set." This wide hole determines the direction of the required fracture. A "complex" lewis hole is the combination of three ordinary drill holes; a "compound" one, of four; but the latter is seldom used, for if a very long break is to be made a series of lewis holes is drilled at considerable distances apart, and after being charged are fired simultaneously by means of an electric battery.

Another process occasionally used in a few quarries is as follows: A single round hole having been drilled, the explosive is put in, and on top of it an inverted iron wedge, placed between two half-rounds, is carefully lowered; then the tamping is proceeded with in the usual way. When the powder is exploded, the wedge, which is driven forcibly up between the half-rounds, breaks the rock in a direction corresponding to its thin end. One of the worst results of this procedure is that considerable rock near the top of the hole is apt to be huffed or flaked up.

Within a few years past the Knox system of blasting rock has been introduced and successfully used with general satisfaction in many of the larger quarries. The results obtained are those which were sought for by lewis-ing, but the process is safer, quicker, takes less powder, and, as it never shatters the rock, not only gives good sound blocks as the product of the blast, but also leaves the standing rock with a perfectly sound, clean face for future operations. A round hole is first drilled to the required depth, and into this is driven a reamer, which produces V-shaped grooves at opposite sides to the entire depth of the hole. The charge is then inserted, and the tamping is done in the usual manner, except that instead of driving the tamping down upon the top of the charge an air space or cushion is reserved between the charge of powder and the tamping and as far above the charge as possible. The explosive has therefore the greatest possible chance for expansion before actually breaking the rock, the tamping being put down only to a sufficient depth to insure firmness of position. The result of this method is that the force of the explosive is directed in the line of the grooves, and no shattering of the rock occurs if it be solid, such as is common in ordinary blasting operations, and, as a consequence, quarrymen are enabled to get out stone of rectangular shape without waste or loss of valuable rock.

Very large blasts or mines are sometimes fired in quarrying granite. A shaft is sunk to the required depth, and from it drifts are run in various directions. These chambers, or drifts, are then charged with explosives and fired. In 1887, at Granite Bend, Missouri, stone enough was broken with one blast to supply the demands of a firm for fifty years. The shaft, which was eighty-five feet deep, had chambers running in several directions from the bottom, and was charged with 32,700 pounds of black powder.

The explosive used for breaking out dimension stone is black blasting powder, as its action is somewhat slower than that of the various forms of nitro-glycerine, and there is consequently less danger of shattering the rock or of weakening it by starting incipient fractures, that may not be detected until it is in place in a building; but for breaking up poor stone, or for getting out rock regardless of size or form, giant powder is frequently employed.

In a quarry having rather thin sheets and numerous vertical joints very good splits may be made with wedges driven between half-rounds (plug and feather) into small holes drilled a few inches apart along a prescribed line, every few feet a deeper hole of a somewhat larger dimension being drilled to guide the fracture; but this process is chiefly used for subdividing the blocks after they have been loosened by powder and for initial splits in quarries where the drift is vertical.

Drills driven either by steam or compressed air are in use for making blast holes in all the principal quarries. The drill is connected with the piston, which is supported by a portable iron tripod, carrying the necessary appliances for regulating its movements. A flexible pipe conveys the motive power in the form of compressed air or steam.

In smaller quarries these holes are drilled by the "jumper" drill, a long, flat-edged steel bar, which a man holds and turns as it rebounds slightly after each of the swinging blows dealt it by heavy sledges.

Steam channeling machines, common in large marble and sandstone quarries, are used on granite by a few quarriers chiefly for making end cuts in stone of exceptional structure, but only to a limited extent, since the great hardness of granite renders the process very slow and expensive.

The large blocks loosened by blasting are broken and split into sizes of the required approximate dimensions by the plug and feather method. The holes, which are of small diameter, generally not more than three-fourths of an inch, and a few inches only in depth, are made by a drill and hand hammer. Into each hole is inserted two half-rounds or "feathers," tapering pieces of iron, flat on one side and rounded on the other, between which is placed a steel plug or wedge. The wedges are then driven in with a sledge till the strain is sufficient to split the rock.

METHODS OF CUTTING, POLISHING, AND ORNAMENTING GRANITE.

Only a small percentage of granite in rough blocks as it leaves the quarry proper is available for use in this form. Most of it has to be cut to the desired dimensions and brought to the degree of finish required for the special purposes for which it is to be used. Very large blocks and stone designed for uses not requiring fine finish are often worked in the open air, but most quarries have cutting sheds erected near the openings, in which the blocks are worked into their intended form. These sheds vary from merely a rough covering of boards to extensive buildings.

To produce good results great skill is needed by the stonecutter in the manipulation of his tools, and considerable artistic ability is required for the finer kinds of work. From the rough work of simply splitting a block or rudely spalling an ashlar face to the artistic working of highly embellished and complicated statuary carving a knowledge of the rift and grain is important, as it indicates where heavy blows may be struck and where lighter ones are required.

Owing to the great obduracy of this stone, and the fact that the different minerals composing it vary greatly in hardness, the chief work of shaping it is still performed by hand, probably by much the same process that was used by Egyptian stonecutters more than three thousand years ago. Improvements and inventions have, however, been made from time to time in hand tools, and extensive machinery is now in use for producing certain forms and kinds of finish.

RECENT IMPROVEMENTS.—The most important improvements of the last decade include the more extended adoption of lathes for turning and polishing columns, urns, etc., and new devices in power machinery for plain polishing. Greater economy and speed are now obtained by the general use of chilled iron globules and crushed steel as abrasive materials and of the pneumatic tool for the ornamentation of surfaces.

GRANITE FOR BUILDING PURPOSES.—By reference to the table giving the output of granite according to purposes, it will be seen that more stone was used for building than for any other purpose. A great amount of labor by the stonecutter is necessary to fit it for its destined place, but much of this work consists in merely squaring up or subdividing the large blocks as hauled from the quarry opening. Much more work is needed on the stone to be used for fronts, trimmings, and certain portions of superstructures, while for special parts, such as polished columns and ornate keystones and capitals, the greatest skill and longest time are required. The general processes of finer finish will, however, be mentioned further on in connection with cemetery, monumental, and decorative purposes, although all stone designed for superstructures, whether rough or finely wrought, has been tabulated under the heading "building purposes."

IMPLEMENTS FOR CUTTING.—The implements used by stonecutters to produce common forms and ordinary finish are as follows:

Chisel.—Various forms and sizes are employed in cutting border drafts, moldings, letters, and ornamental work.

Point.—A piece of steel bar drawn out to a pyramidal end; used for "roughing out" surfaces and removing "lunchees."

Hand drills, wedges and half-rounds.—Used for splitting out blocks.

Hand hammer.—Used in one hand for driving chisels, points, and drills, which are held and guided by the other.

Spalling hammer.—A heavy square-cornered sledge, used for roughly reducing a block by breaking off large chips or spalls from the edges, thus bringing it closer to its intended form.

Peen hammer.—Shaped like a double-edged wedge, with a handle running parallel with the edges; used to remove irregularities by striking squarely upon a surface and wedging or bruising off small chips.

Bush hammer.—Made of rectangular steel plates brought to an edge, bolted together, and attached to a long handle; used in the same manner as the peen hammer, but produces a smoother surface, the degree of smoothness depending upon the number of steel plates in the particular hammer used. These hammers, which are all of the same thickness, are called 4-cut, 5-cut, 6-cut, 8-cut, 10-cut, and 12-cut, according to the number of plates used in their construction.

The size, shape, and finish of a stone depend upon the particular place it is to occupy in a building and the style of architecture. Fronts or walls are laid up in various kinds of ranges, usually designated as coursed range, broken range, broken ashlar, random range, and rubble work. The kind of finish given the face of the stone is called either bush hammered, peen hammered, pointed work, or rock face. These may or may not have a border draft chiseled around their margins. Other kinds of finish are chiseled moldings and carved or polished faces.

The usual process followed by stonecutters in shaping blocks may be generalized as follows: The block, having been split out to about the right size by the plug and feather method, is brought to a plane surface on one side, which is accomplished by knocking off overhanging edges and projections with the spalling hammer or spalling tool. Drafts or ledges are then chiseled along two opposite edges. One draft being completed, the workman lays upon it a wooden strip or rule having parallel edges. A second rule is then sunk in the draft made on the opposite side until the two drafts are in the same plane, which is determined by sighting across the upper edges of the rules. The whole face is then worked down to this plane with the tools necessary for the required fineness of finish, a straightedge being applied from time to time as the work progresses. The point is used for removing rougher projections. This is followed by the peen hammer, and, if a smoother surface is required, it is made by bush hammering, the hammer having the fewest number of plates being used first. The required size of the face being marked out upon this surface, the position of a second face may be determined by chiseling drafts across the ends of an adjacent surface, using for the purpose either a square or a bevel, depending upon the angle it is desired to make with the first face. The projecting rock between the drafts having been removed in the manner used in forming the first surface, a third face may be projected. A winding surface is formed by using in one draft a rule or strip having its opposite edges not parallel, the amount of divergence depending upon the amount of warp required. This rule is sunk till its upper edge is even with the upper edge of the strip, having parallel edges placed upon the opposite edge of the stone.

A cylindrical surface is worked by using curved rules in one direction, and is not as hard a matter as might at first seem. Much difficulty is, however, encountered in laying out and working spiral, conical, and spherical surfaces, as it is first necessary to form plane and cylindrical faces on which to apply the necessary bevels and templates.

GRANITE FOR STREET WORK.

PAVING BLOCKS.—Experience has demonstrated that the best and most enduring streets for heavy traffic in large cities are those paved with stone blocks of proper material and size laid upon a specially prepared bed. The very hard and tough rocks frequently used, though capable of withstanding a maximum amount of wear, soon become smooth and glazed under traffic, and are therefore inferior to a stone which, wearing roughly, affords a better foothold for horses. Many of the granitic rocks possess the right degree of hardness and brittleness, and are largely used for this purpose. This industry has increased largely since 1880, the number of granite blocks made in 1889 in the various states aggregating nearly 62,000,000.

Streets paved with the large-sized block used at first were found to be more difficult to keep in repair, worse for horses, and rougher on vehicles than pavements made of the smaller blocks now in general use. There is no uniform standard of size, as specifications of the various cities call for different sizes, but the variations are not great, and blocks $3\frac{1}{2}$ to $4\frac{1}{2}$ inches wide, 6 to 7 inches deep, and 8 to 12 inches long are generally preferred. In New York city, Brooklyn, and Philadelphia blocks a trifle longer are more commonly used, while in many of the western and southern cities the length does not exceed 10 inches. New Orleans, owing to the peculiar nature of its streets, takes blocks much larger.

The manufacture of paving blocks, though an important adjunct of the granite business, varies nevertheless for obvious reasons in many of its details from the ordinary methods of granite cutting. The high skill and fine workmanship of the stonemason are not needed, but a quickness in seeing and taking advantage of the directions of cleavage, as well as a deftness in handling the necessary tools, is requisite.

Specifications call for blocks so quarried or dressed as to present substantially rectangular faces with practically straight edges. The corresponding dimensions of opposite faces must not vary more than one-half inch, and the surface must be free from bunches, depressions, and inequalities exceeding one-half inch.

The tools used for making blocks are knapping hammers, opening hammers, hand hammers, reels, chisels, and, for initial splits, drills, wedges, and half-rounds. When the block maker quarries his own stock it is called "motion work," and the same process is used as in quarrying stone for other purposes, except that, as large blocks are not required, most of it can be done with plug and feather.

Slabs, having been split out in the usual manner to sizes that may be easily turned over and handled by one man, are subdivided into pieces corresponding approximately to the dimensions of the required blocks. This is done by striking repeated blows upon the rock along the line of the desired break with heavy knapping and opening hammers. When a break is to be made crosswise the grain, it is frequently necessary to chisel a light groove across one face, and commonly across the adjacent sides, to guide the fracture produced by striking on the opposite surface with the opening hammer. Good splits can, however, be made along either the rift or grain by the skillful use of the opening hammer alone. Blocks broken out in the manner described are trimmed and finished with the reel, which is a hand hammer having a long, flat, steel head attached to a short handle. Block breakers become very expert in the use of this instrument, and without making any measurements turn out in a surprisingly short time a large number of blocks. In Maine, which is far ahead of any other state in the number of blocks made, the entire product of many quarries is used for this exclusive purpose. This is also the case in California, which comes second, though the blocks are manufactured chiefly from the surface "boulders" or detached masses of basalt so common in Sonoma county. Other quarries, however, in various parts of the country utilize only the "grout," small or irregular shaped pieces, for making paving block, and haul the stock to the breakers, who work in sheds; but the greatest number of blocks are made on the spot where the rock is quarried, the workmen being protected during the hottest months by a temporarily spread canvas fly.

Blocks are counted as they are thrown into the cart, which is usually needed to haul them to the shipping point. Several paving-block quarries in Maine are situated on steep mountain slopes so near water communication that blocks may be slid in long board chutes from the quarry directly into the hold of the vessel used for their transportation.

Paving breakers seldom work by the day, but are paid a certain sum per thousand for making the blocks, the price paid in 1889 ranging from twenty-two to thirty dollars, according to the size of block made, kind of stone used, locality, and whether the tools were furnished and the blocks quarried by their employers. Workmen using their own tools are commonly paid one dollar more per thousand for the blocks made, and when they quarry the stock they use, from two to five dollars per thousand is allowed in addition.

CURBING AND BASIN HEADS.—Next in importance to the manufacture of paving blocks, in the division of granite for street work, is the production of long granite slabs for curbstone. Granite,

having a free rift, is preferred for this purpose on account of its better working qualities. The dimensions of ordinary curbstones are from 6 to 12 feet long, 6 to 8 inches thick, and about 2 feet deep. The top edge is made full and square and neatly bush hammered; the face is also bush hammered down about a foot from the top. The ends are dressed smooth, so as to make close joints, and the back of the stone, which is placed next to the sidewalk, is also dressed a few inches from the top.

OTHER USES.—Other applications of granite to street work are for flagstone, for crosswalks laid at the intersection of streets, and for gutter stone, but these are dressed, when required, in the usual manner, and need no special comment here.

Granite is largely used for making macadam and telford roads and concrete and artificial stone pavements, though it is seldom quarried expressly for this purpose, but made of spalls, grout, and waste from other quarries. The pieces are broken with sledges where coarse stones are needed, or run through power rock-breakers when a finer subdivision is required.

GRANITE FOR CEMETERY, MONUMENTAL, AND DECORATIVE PURPOSES.—A considerable portion of the stone for these uses, especially for small-sized monuments, tombstones, and grave markers, is shipped from the quarries in rough blocks, which are suitably shaped and finished by masons working in town shops or stone yards. Large monuments and large polished blocks for buildings, columns, pilasters, and statuary are generally worked at quarry sheds, polishing mills, or shops not far distant.

There has been a decided increase in the use of polished granite for cemetery purposes since the introduction of machinery for its polishing, which has greatly decreased the price for this kind of finish. For these, as well as for all purposes where a polished surface is desired, as bottom courses in buildings, columns, pilasters, wainscoting, etc., the red, pink, dark-gray, and black varieties are in high favor, since they have a richer look and present a much greater contrast between a hammered or chiseled surface and a polished one; but for granite statuary and ornately carved building blocks, and for all purposes where it is desirable to present fine detail, it is necessary that the granite be of a light color, fine grained, and easily worked to secure the best results.

POLISHED GRANITE.—The varieties of granite susceptible of the highest and most enduring polish are those containing the largest percentages of the hard minerals, quartz and feldspar, quartz being especially important. Hornblende, however, takes a fairly good polish, and contributes largely to the coloring of most dark granites. Pyroxene of the type occurring in the Quincy granites is rather bad, since, owing to its brittleness, it cracks out more or less and leaves small pits in the finished face. Much mica, especially in large plates, is objectionable, as it will not polish, but remains dull and lusterless except where the direction of its cleavage planes happen to coincide with the face of the stone.

After being prepared by bush hammering, the block is transported to the shop or mill to receive further smoothing and its final finish. The surface to be worked upon is brought to a horizontal position and ground smooth with an abrasive material mixed with water and moved about by a revolving iron or steel disk perforated with holes or made of concentric rings. This disk, which is 12 or 14 inches across, is revolved by an upright shaft, to the bottom of which it is fastened, and the power is communicated through a main shaft running overhead. Joints in the upright or counter shaft and its peculiar attachment to the main shaft allow its lower end to be swung over a considerable area, thus permitting the workman who guides it to move it over a surface of stone many times larger than the disk itself.

The abrasive material now almost exclusively used for grinding granite is either chilled-iron globules, steel emery, or crushed steel. A coarse grade is used at first, then a finer kind, and for the last grinding fine emery is often used. Polishing is done in much the same way as grinding, except that a felt-covered disk is used in place of an iron one, and putty powder, mixed with a little water, instead of coarser grinding materials. Before the final polish, however, the surface is usually given a dull gloss or "skin coat" by the disk and water alone. A polish is sometimes produced by the use of oxalic acid instead of putty powder, but the polish thus made is less durable. Moldings are ground and polished by means of blocks fitting the grooves dragged back and forth either by power or hand.

Granite for columns, balusters, round posts, and urns is now worked chiefly in lathes, which, for the heaviest work, are made large enough to handle blocks 25 feet long and 5 feet in diameter. Instead of being turned to the desired size by sharp cutting instruments, as in ordinary machines for turning wood and metal, granite is turned or ground away by the wedge-like action of rather thick steel disks, rotated by the pressure of the stone as it slowly turns in the lathe. The disks, which are six or eight inches in diameter, are set at quite an angle to the stone, and move with an automatic carriage along the lathe bed. Large lathes have four disks, two on each side, and a column may be reduced some two inches in diameter the whole length of the stone by one lateral movement of the carriages along the bed. The first lathes for turning granite cut only cylindrical or conical columns, but an improved form is so made that templates or patterns may be inserted to guide the carriages, and columns having any desired swell may be as readily turned. For fine grinding and polishing the granite is transferred to another lathe, where the only machinery used is to produce a simple turning or revolution of the stone against iron blocks carrying the necessary grinding or polishing materials.

Blocks are prepared for lathe work by being roughed out with a point, and by having holes chiseled in their squared ends for the reception of the lathe dog and centers. This principle of cutting granite by means of disks revolved by contact with the stone has been also applied to the dressing of plain surfaces, the stone worked upon being mounted upon a traveling carriage and made to pass under a series of disks mounted in a stationary upright frame.

Tracery and lettering for polished granite are usually first drawn upon paper, which is firmly pasted to the surface and the design chiseled through it to the requisite depth in the rock.

CARVED GRANITE.—Statues, capitals, keystones, and, in general, all highly ornamental designs, are worked out with chisels from detail drawings or plaster casts. It is necessarily a slow process, owing to the hardness of the rock, and the cost of such work is consequently great. The MacCoy pneumatic tool, however, which has been recently patented and successfully applied to this purpose, gives promise of superseding much of the tediousness of the hand process. This instrument is connected to a flexible pipe, supplying the compressed air or steam by which it is driven, and works at a remarkably high rate of speed. It may be moved to any part of a surface, and works with a celerity unapproached by other means.

The use of granite for sculpture is steadily increasing, particularly for outdoor statuary. The white fine-grained muscovite-biotite granite found at Hallowell, Manchester, and Augusta, in Maine, is particularly well adapted for this purpose. Statues made of the Hallowell granite are to be found in nearly every state, though possibly the stone is not superior to varieties found in other localities.

The following directory is arranged alphabetically by states, each state including the quarries operated. It will be noticed that in many cases the post-office address of the firm operating the quarry is not identical with the location of the quarry. The number of names included in this directory is greater than the number of firms which were in operation in 1889 and whose statistics are tabulated, the object being to give a directory of firms operating up to the time the report went to press. Some of the firms included in the directory commenced operations since 1889, but of course no statistics relative to such firms are included in the report.

DIRECTORY OF GRANITE PRODUCERS.

ARKANSAS.

NAMES OF FIRMS.	POST-OFFICE ADDRESS.	LOCATION OF QUARRY.
Fourche Mountain Granite Co.....	Little Rock, Pulaski county.....	Sections 24 and 26 north, range 12 west, Pulaski county.

CALIFORNIA.

M. K. Cady.....	Agua Caliente, Sonoma county.....	1½ mile east of Agua Caliente, Sonoma county.
C. F. Faber.....	do.....	1¼ mile north of Agua Caliente, Sonoma county.
Mary T. Hayes.....	do.....	2½ miles from Agua Caliente, Sonoma county.
Muggie Read.....	do.....	2½ miles north of Agua Caliente, Sonoma county.
W. B. Read.....	do.....	1½ mile north of Agua Caliente, Sonoma county.
Allen Taylor.....	Angel's Camp, Calaveras county.....	Angel's township, Calaveras county.
E. Turner.....	Arcata, Humboldt county.....	Mad river, 6 miles east of Arcata, Humboldt county.
J. J. Dunn.....	Berkeley, Alameda county.....	1½ mile northeast of Berkeley, Alameda county.
J. D. Slemmons.....	Butte City, Montana.....	1 mile northeast of Monrovia, Los Angeles county.
A. McNaughton.....	Cordelia, Solano county.....	Green valley, 1½ mile east of Cordelia, Solano county.
Los Angeles Granite and Marble Works.....	Delezeville, San Bernardino county.....	Delezeville, San Bernardino county.
Rocky Point Granite Works.....	Exeter, Tulare county.....	2½ miles northeast of Exeter, Tulare county.
David Blower.....	Folsom City, Sacramento county.....	2¼ miles north of Folsom City, Sacramento county.
E. McCue & Bro.....	do.....	2 miles east of Folsom City, Sacramento county.
State Prison.....	Folsom, Sacramento county.....	2 miles east of Folsom, Sacramento county.
Ahearn Bros.....	Grass Valley, Nevada county.....	4 miles west of Grass Valley, Nevada county.
George Kane.....	La Cañada, Los Angeles county.....	6 miles northwest of Pasadena, Los Angeles county.
Chyanaca Granite Co.....	Lakeside, San Diego county.....	4½ miles north of Lakeside, San Diego county.
T. L. Coffey.....	Lincoln, Placer county.....	Seventh district, Placer county.
Byrne Bros.....	do.....	1½ mile east of Lincoln, Placer county.
H. W. Calderwood.....	do.....	2 miles east of Lincoln, Placer county.
F. R. Fretcher.....	do.....	Foot-hills of Sierra mountains, 2 miles east of Lincoln, Placer county.
Thomas H. Jeter.....	do.....	2 miles southeast of Lincoln, Placer county.
McCue & Johnson.....	do.....	do.....
Wm. Cook & Sons.....	Loomis, Placer county.....	1¼ mile east of Loomis, Placer county.
M. J. Healey.....	do.....	½ mile southwest of Loomis, Placer county.
Patrick Hoy.....	do.....	2 miles southeast of Loomis, Placer county.
M. Craig.....	2020 Michigan avenue, Los Angeles, Los Angeles county.	5 miles northwest of Riverside, San Bernardino county.
The Porphyry Paving Co.....	54 Baker Block, Los Angeles, Los Angeles county.	2 miles southeast of Riverside, San Bernardino county.
Conrad Scheerer.....	622 West Sixth street, Los Angeles, Los Angeles county.	2½ miles east of Victor, San Bernardino county.
M. W. Griswold.....	Los Guilicos (mail South Los Guilicos, Sonoma county).	1 mile west of South Los Guilicos, Sonoma county.
E. D. Bridges.....	Nevada City, Nevada county.....	¾ mile northeast of Nevada City, Nevada county.
Charles Treleven.....	do.....	½ mile east of Nevada City, Nevada county.
Patrick Gallagher.....	Novato (mail Black Point), Marin county.	5 miles from Black Point, Marin county.
Alameda Macadamizing Co.....	Oakland, Alameda county.....	2½ miles northeast of Oakland, Alameda county.
California Improvement Co.....	1003½ Broadway, Oakland, Alameda county.	¼ mile north of Mills College, Alameda county.
Oakland Paving Co.....	Oakland, Alameda county.....	½ mile east of Temescal, Alameda county.
Wilkinson & Kellos.....	Penn's Grove, Sonoma county.....	Penn's Grove, Sonoma county.
Gatt & Gatt.....	Penryn, Placer county.....	1½ mile east of Penryn, Placer county.
David Griffith.....	do.....	Penryn, Placer county.
Roberts Bros.....	do.....	½ mile west of Penryn, Placer county.
G. Schwalenberg.....	do.....	1½ mile east of Penryn, Placer county.
Peter Clarke.....	Petaluma, Sonoma county.....	6 miles northeast of Petaluma, Sonoma county.
John Lynch.....	do.....	do.....
S. Stacey.....	do.....	6 miles east of Petaluma, Sonoma county.
Day Granite Co.....	Raymond, Fresno county.....	4 miles south of Raymond, Fresno county.
F. E. Knowles.....	do.....	2½ miles east of Raymond, Fresno county.
Arlington Granite Works.....	Riverside, San Bernardino county.....	5½ miles southwest of Riverside, San Bernardino county.
Ward & Clark.....	do.....	4 miles southeast of Riverside, San Bernardino county.
Copp & Waters.....	Rocklin, Placer county.....	¾ mile southeast of Rocklin, Placer county.
I. L. Delano & Co.....	do.....	½ mile east of Rocklin, Placer county.
John L. Grant.....	do.....	½ mile south of Rocklin, Placer county.
Matt Lahy & Co.....	do.....	½ mile east of Rocklin, Placer county.
Matt Lumber.....	do.....	1 mile southeast of Rocklin, Placer county.

DIRECTORY OF GRANITE PRODUCERS—CONTINUED.
CALIFORNIA—CONTINUED.

NAMES OF FIRMS.	POST-OFFICE ADDRESS.	LOCATION OF QUARRY.
Samuel Kenter & Co	Rocklin, Placer county	1 mile south of Lincoln, Placer county.
Thomas Quinn	do	½ mile southeast of Rocklin, Placer county.
John M. Taylor	do	¾ mile east of Rocklin, Placer county.
Oscar Wikeman	do	1½ mile southeast of Rocklin, Placer county.
Carlaw Bros	Tenth and R streets, Sacramento	1 mile southeast of Loomis, Placer county.
Excelsior Paving Co	San Diego, San Diego county	6 miles east of National City, San Diego county.
San Diego Granite Co	do	3 miles south of Temecula, San Diego county.
American River Land and Lumber Co	320 Sansome street, San Francisco	2½ miles east of Folsom, Sacramento county
Degan & Brady	Eleventh and Bryant streets, San Francisco.	Rocklin, Placer county.
Folsom Water Power Co	320 Sansome street, San Francisco	1 mile east of Folsom, Sacramento county.
Wm. Kennedy	507 Fell street, San Francisco	2 miles north of Penn's Grove, Sonoma county.
J. W. McDonald	234 Montgomery street, San Francisco	Sonoma, Sonoma county.
Pacific Stone Co	Sixth and King sts., San Francisco	2 miles east of Raymond, Fresno county.
E. R. Thomason	Phelan Building, San Francisco	2 miles east of Cordelia, Solano county.
Western Granite and Marble Co	San José, Santa Clara county	Near Loomis, Placer county.
C. G. Borg	Santa Rosa, Sonoma county	8 miles east of Santa Rosa, Sonoma county.
A. Ducharm	do	2½ miles east of Santa Rosa, Sonoma county.
L. Laurent	do	5 miles east of Santa Rosa, Sonoma county.
James Warner	do	2 miles north of Santa Rosa, Sonoma county.
William Trudgen	Sonoma, Sonoma county	4 miles northeast of Sonoma, Sonoma county.
H. C. Manuel	do	3 miles north of Sonoma, Sonoma county.
S. Schlocken	do	1 mile north of Sonoma, Sonoma county.
Henry Weyl	do	2 miles north of Sonoma, Sonoma county.
Ferdinand Doda	South Los Guillicos, Sonoma county	2 miles west of Los Guillicos, Sonoma county.
C. N. Fernald & Son	Temecula Station, San Diego county	1½ mile south of Temecula, San Diego county.
A. C. St. John	Victor, San Bernardino county	Section 10, range 5, San Bernardino county.

COLORADO.

John L. Chasteen	Arkins, Larimer county	Arkins, Larimer county.
Larimer County Granite Quarry Co	do	1 mile west of Arkins, Larimer county.
George Weaver	Buena Vista, Chaffee county	3 miles north of Nathrop, Chaffee county.
James M. Curry	1319 Sixteenth street, Denver	5 miles southeast of Castle Rock, Douglas county.
Geddis & Secrie	Box 2873, Denver	On Beaver creek, near Aberdeen, Gunnison county.
Roy & Savard	Cor. West Thirteenth avenue and South Sixth street, Denver.	Castle Rock, Douglas county.
The Castle Rock Stone Co	1304 Seventeenth street, Denver	2 miles northeast of Castle Rock, Douglas county.
The Douglas Stone Quarry Co	1510 Seventeenth street, Denver	2 miles south of Castle Rock, Douglas county.
W. A. Hamill	Georgetown, Clear Creek county	Griffith Mining District, Clear Creek county.
J. W. Tumbleson	Lyons, Boulder county	1 mile south of Lyons, Boulder county.

CONNECTICUT.

C. B. Wooster	Ansonia, New Haven county	¾ mile northeast of Ansonia, New Haven county.
F. W. Beers	Bridgeport, Fairfield county	1½ mile north of Bridgeport, Fairfield county.
Patrick Garvey	do	North Bridgeport, Fairfield county.
B. D. Pierce, Jr	do	3 miles northwest of Bridgeport, Fairfield county.
J. W. Southey	do	2 miles north of Bridgeport, Fairfield county.
Martin Collins	Danbury, Fairfield county	1¼ mile south of Danbury, Fairfield county.
Henry Brooks	East Glastonbury, Hartford county	½ mile north of East Glastonbury, Hartford county.
A. N. Curtis	do	2 miles west of East Glastonbury, Hartford county.
Lester Holmes	do	1½ mile west of East Glastonbury, Hartford county.
Henry T. Lingner	do	¼ mile north of East Glastonbury, Hartford county.
Nelson Slater	do	1 mile west of East Glastonbury, Hartford county.
Joseph Gately	East Killingly, Windham county	¾ mile northeast of East Killingly, Windham county.
Joseph G. Mead	Greenwich, Fairfield county	½ mile west of Greenwich, Fairfield county.
George H. Ritch & Bros	Port Chester, Westchester county, N. Y.	2½ miles south of Greenwich, Fairfield county.
Thomas Ritch & Son	Greenwich, Fairfield county	1¼ mile southwest of Greenwich, Fairfield county.
John Voorhis	do	2½ miles southwest of Greenwich, Fairfield county.
Henry Webb	do	½ mile northwest of Greenwich, Fairfield county.
James Scully & Son	Groton, New London county	½ mile east of Groton, New London county.
Darwin N. Benton	Guilford, New Haven county	Guilford township, Sachem's Head Point, New Haven county.
Seth Belden & Son	Hartford, Hartford county	(a) 1 mile northwest of Bolton, Tolland county. (b) 2 miles southeast of East Glastonbury, Hartford county.
Alexander Dallas	do	¼ mile northwest of Cobalt, Middlesex county.

DIRECTORY OF GRANITE PRODUCERS—CONTINUED.
CONNECTICUT—CONTINUED.

NAMES OF FIRMS.	POST-OFFICE ADDRESS.	LOCATION OF QUARRY.
John Beattie.....	Leete's Island, New Haven county.....	Leete's island, New Haven county.
Haddam Granite Quarry Co.....	Middletown, Middlesex county.....	$\frac{1}{2}$ mile east of Haddam, Middlesex county.
Scovill & Murphy.....	.....do.....	3 miles north of Higganum, Middlesex county.
Whitmore Bros.....	.....do.....	.....do.
Thomas M. Clark.....	Milford, New Haven county.....	$1\frac{1}{2}$ mile northwest of Milford, New Haven county.
Alexander Murray.....	Westerly, R. I.....	Stonington township, New London county, 1 mile west of Westerly, R. I.
Opie & Caddy.....	Mystic, New London county.....	$1\frac{1}{2}$ mile from Mystic, New London county.
Trevena Bros.....	Mystic Bridge, New London county.....	Stonington township, $1\frac{1}{2}$ mile northeast of Mystic, New London county.
John Hanna.....	New Britain, Hartford county.....	(a) $\frac{1}{2}$ mile north of Stony creek, New Haven county. (b) 2 miles west of Guilford, New Haven county.
Charles F. Stoll.....	New London, New London county.....	$\frac{1}{2}$ mile south of Groton, New London county.
Frank P. Bolles.....	New Milford, Litchfield county.....	$1\frac{1}{2}$ mile northeast of Warren, Litchfield county.
James H. Hummel.....	153 Fulton street, New York city.....	$\frac{3}{4}$ mile northwest of Branchville, Fairfield county.
Booth Bros. (a).....	Niantic, New London county.....	1 mile southeast of Niantic, New London county.
Winter Davis.....	.....do.....	$1\frac{1}{2}$ mile south of Waterford, New London county.
James V. Luce.....	.....do.....	$3\frac{1}{2}$ miles west of Niantic, New London county.
David McNaughton.....	.....do.....	$1\frac{1}{2}$ mile southeast of Niantic, New London county.
The Millstone Granite Co.....	.....do.....	1 mile southeast of Niantic, New London county.
The White Granite Co.....	.....do.....	Waterford township, 1 mile east of Niantic, New London county.
O. E. Gibson.....	Oneco, Windham county.....	1 mile west of Oneco, Windham county.
Garvey Bros. (b).....	9 Custom House street, Providence, R. I.....	1 mile southwest of Oneco, Windham county.
E. Mower & Co.....	Roxbury Station, Litchfield county.....	$\frac{1}{4}$ mile north of Roxbury station, Litchfield county.
Gorman Bros.....	South Manchester, Hartford county.....	3 miles south of South Manchester, Hartford county.
Reilly & Bamty.....	Stamford, Fairfield county.....	1 mile northeast of Stamford, Fairfield county.
J. W. Boswell.....	Sterling, Windham county.....	$\frac{1}{8}$ mile northeast of Sterling, Windham county.
John L. Derble & Co.....	Stony Creek, New Haven county.....	$1\frac{1}{2}$ mile north of Stony creek, New Haven county.
Norcross Bros.....	Worcester, Mass.....	$1\frac{1}{4}$ mile northeast of Stony creek, New Haven county.
The Branford Granite Co.....	Stony Creek, New Haven county.....	2 miles east of Stony creek, New Haven county.
Kenneth McKay (b).....	Valley Falls, R. I.....	$\frac{1}{2}$ mile east of Sterling, Windham county.
L. R. Lull.....	West Stafford, Tolland county.....	3 miles west of West Stafford, Tolland county.
Elson & Calkins.....	Willimantic, Windham county.....	$1\frac{1}{4}$ mile northwest of Willimantic, Windham county.
W. H. Osborn.....	.....do.....	$\frac{1}{2}$ mile east of Willimantic, Windham county.

DELAWARE.

A. G. Morris & Co.....	Avondale, Chester county, Pa.....	Baltimore and Ohio railroad, Philadelphia division, New Castle county.
George W. Phillips.....	Bellevue, New Castle county.....	Eastern district, Brandywine hundred, New Castle county.
Daniel Dougherty.....	Wilmington, New Castle county.....	Southwest of Wilmington, New Castle county.
John H. Flamer.....	416 East Eleventh street, Wilmington.	Wilmington, New Castle county.
McKendrick & Scott.....	.....do.....	$\frac{1}{4}$ mile west of Wilmington, New Castle county.
Philip P. Tyre.....	.....do.....	$\frac{3}{4}$ mile from Edgemoor station, New Castle county.
The Brandywine Granite Co.....	Ninth and Market streets, Wilmington.	Christiana and Brandywine hundreds, New Castle county.

GEORGIA.

A. V. Gude.....	Atlanta, Fulton county.....	(a) 1 mile south of Conyers, Rockdale county. (b) $1\frac{1}{4}$ mile east of Lithonia, De Kalb county.
Liddell & Johnsons.....	12 Lloyd street, Atlanta.....	Conley, Henry county.
M. E. Maher.....	Atlanta, Fulton county.....	1 mile south of Stockbridge, Henry county.
The Southern Granite Co.....	.....do.....	2 miles west of Lithonia, De Kalb county.
Venable Bros.....	Old Capitol Building, Atlanta.....	(a) 2 miles northwest of Lithonia, De Kalb county. (b) $2\frac{1}{2}$ miles northeast of Stone mountain, De Kalb county.
Alexander Currie.....	Conyers, Rockdale county.....	(a) 3 miles northeast of Conyers, De Kalb county. (b) $1\frac{1}{2}$ mile southeast of Conyers, De Kalb county.
Freeman Bros.....	Covington, Newton county.....	2 miles southeast of Covington, Newton county.
Wm. Doyle.....	Crawford, Oglethorpe county.....	1 mile east of Crawford, Oglethorpe county.
Swift & Wilcox.....	Elberton, Elbert county.....	$\frac{1}{4}$ mile south of Elberton, Elbert county.
H. H. Jones & Co.....	Griffin, Spalding county.....	$\frac{3}{4}$ mile northwest of Griffin, Spalding county.
W. G. Finlayson.....	Lithonia, De Kalb county.....	In Rockdale county, $2\frac{1}{2}$ miles south of Lithonia.
Edward Goddard & Co.....	.....do.....	$\frac{1}{2}$ mile east of Lithonia, De Kalb county.
S. D. Jenkins.....	.....do.....	3 miles south of Lithonia, De Kalb county.

a See also Maine, b See also Rhode Island.

DIRECTORY OF GRANITE PRODUCERS—CONTINUED.

GEORGIA—CONTINUED.

NAMES OF FIRMS.	POST-OFFICE ADDRESS.	LOCATION OF QUARRY.
E. G. New	Lithonia, De Kalb county	1 mile northeast of Lithonia, De Kalb county.
Wilson Bros.	do	2½ miles northwest of Lithonia, De Kalb county.
T. J. Carling & Co. Granite Co	Macon, Bibb county	(a) 3 miles from Sparta, Hancock county. (b) Holton, Bibb county.
The Georgia Quincy Granite Co.	do	Sparta, Hancock county.
J. R. Hightower	Monticello, Jasper county	Jones county.
Central Railroad and Banking Co	Savannah, Chatham county	1 mile northwest of Griffin, Spalding county.
J. X. Beauchamp & Co	Stone Mountain, De Kalb county	3 miles from station, Stone mountain, De Kalb county.
R. M. Thompson	do	3 miles east of Stone mountain, De Kalb county.

MAINE.

Manufacturers' Granite Co. (limited)	40 Court street, Brooklyn, N. Y.	6 miles southwest of Addison, Washington county.
Pleasant River Granite Co. of Maine	Addison, Washington county	4 miles south of Addison Point post office, Washington county.
Theodore Bennett	Alfred, York county	1¼ mile south-southwest of Alfred, York county.
F. N. Joaquin	Athens, Somerset county	3 miles southeast of Athens, Somerset county.
Maine and New Hampshire Granite Co. (a)	Auburn, Androscoggin county	North Jay, Franklin county.
Edwards Manufacturing Co	Augusta, Kennebec county	Fourth ward, Augusta, Kennebec county.
F. E. Garland	do	Belgrade road, 2 miles north of Augusta, Kennebec county.
Howard S. Robie	do	2 miles south of Augusta, Kennebec county.
Wm. A. Wall & Son	do	½ mile west of Augusta, Kennebec county.
Daniel S. Young	do	3 miles northeast of Augusta, Kennebec county.
Jewell Granite Co.	Bangor, Penobscot county	1 mile northeast of Lincoln, Penobscot county.
Kodick Bros.	Bar Harbor, Hancock county	Mount Desert, Hancock county, east side Somes sound, near Sound post office.
Adams Oak Hill Granite Co	Belfast, Waldo county	3 miles north of City Point post office, Belfast, Waldo county.
Cyrus J. Hall	do	(a) 2¾ miles south of Mount Desert post office, Hancock county. (b) Otter creek, 6 miles south of Bar Harbor, Hancock county.
W. O. Sargent	do	3 miles northeast of Swanville, Waldo county.
C. H. Andrews	Biddeford, York county	1 mile south-southwest of Biddeford, York county.
C. H. Bragdon & Sons	do	½ mile southwest of Biddeford, York county.
Day Bros.	do	4 miles west of Biddeford, York county.
C. H. & A. Goodwin	do	3 miles southeast of Biddeford, York county.
L. B. Howe & Co	do	2¼ miles southwest of Biddeford, York county.
Gordon & Michie	do	Alfred road, 2 miles from Biddeford, York county.
J. B. Palmer	do	4 miles west of Biddeford, York county.
Geo. W. Ross	do	3 miles south of Biddeford, York county.
James B. Smith	do	1 mile south of Biddeford, York county.
Wm. P. Bissett	Blue Hill, Hancock county	3 miles south of Orland, Hancock county.
Geo. W. Clay	do	1½ mile east of Blue Hill, Hancock county.
Blue Hill Granite Co.	do	1¼ mile east of Blue Hill, Hancock county.
Howard & Green	do	1 mile northeast of Blue Hill, Hancock county.
The White Granite Co	do	1¼ mile east of Blue Hill, Hancock county.
J. E. Allen & Sons	Bridgton, Cumberland county	8 miles north of Harrison, Cumberland county.
Albion P. Woodside	Brunswick, Cumberland county	3 miles northeast of Brunswick, Cumberland county.
Eben H. Fernald	Camden, Knox county	Lincolnton, Waldo county, 5 miles north of Camden.
S. L. Fowler	Canaan, Somerset county	3 miles northwest of Canaan, Somerset county.
Atherton & Sperry	East Blue Hill, Hancock county	1 mile south of East Blue Hill, Hancock county.
Dugdale, Stansfield & Co.	do	¾ mile east of East Blue Hill, Hancock county.
Ellsworth and East Blue Hill Granite Co.	do	East Blue Hill, Hancock county.
Johnson & Long	do	do.
John Love	do	¾ mile west of East Blue Hill, Hancock county.
John T. Miller	do	½ mile west of East Blue Hill, Hancock county.
Campbell & Macomber	Ellsworth, Hancock county	Mount Desert, west shore of Somes sound, 2½ miles south of Mount Desert post office, Hancock county.
Hayward Pierce	Frankfort, Waldo county	¾ mile from Frankfort, Waldo county.
The Mount Waldo Granite Works	do	1 mile from Frankfort, Waldo county.
T. M. Blaisdell	Franklin, Hancock county	1½ mile southeast of Franklin, Hancock county.
Blaisdell & Donnell	do	4 miles south of Franklin, Hancock county.
Frank Bradbury	do	¾ mile northeast of West Franklin post office, Hancock county.
John Paul Gordon	do	On Taunton bay, 1 mile from Franklin post office, Hancock county.
West & Wentworth	do	2 miles south of Franklin, Hancock county.
G. D. Weeks	Gorham, Cumberland county	1 mile south of Gorham, Cumberland county.
Calvin Ames	Green's Landing, Hancock county	Deer isle, ½ mile east of Green's Landing, Hancock county.
James Clegg	do	On eastern end of Moose island, 1 mile west from Green's Land- ing, Hancock county.

a See also New Hampshire.

DIRECTORY OF GRANITE PRODUCERS—CONTINUED.

MAINE—CONTINUED.

NAMES OF FIRMS.	POST-OFFICE ADDRESS.	LOCATION OF QUARRY.
Jos. Dufore & Co.	Green's Landing, Hancock county.	Western end Crotch island, near Green's Landing, Hancock county.
Herman Eaton	do	Scott's island, Hancock county.
Thomas H. Eaton	do	Potato island, $\frac{3}{4}$ mile south-southeast from Green's Landing, Hancock county.
Eaton, Grant & Martin	do	Crotch island, near Green's Landing, Hancock county.
J. Goss, jr.	do	Crotch island, 1 mile southeast of Green's Landing, Hancock county.
Goss & Small	do	Green's island, 1 mile south of Green's Landing, Hancock county.
Sullivan, Green & Co.	do	Northwest side of Green's island, Hancock county.
S. A. McDonald & Co.	do	Just east of Green's Landing, Hancock county.
P. G. Merrill	do	Crotch island, 1 mile southeast of Green's Landing, Hancock county.
Neelon & Shields	do	(a) Green's Landing, Hancock county. (b) Devil island, $3\frac{1}{2}$ miles southeast from Green's Landing, Hancock county.
J. H. Robbins	do	Scott's island, 1 mile south of Green's Landing, Hancock county.
T. Snow & Co.	do	Green's Landing, Hancock county.
H. M. Thayer	do	Russ island, near Green's Landing, Hancock county.
E. S. Thurlow & Co.	do	Northeast point of Thurlow's island, $\frac{1}{4}$ mile southwest of Green's Landing, Hancock county.
Thos. Warren & Co.	do	(a) Deer isle, $\frac{1}{4}$ mile west of Green's Landing, Hancock county. (b) Crotch island, $\frac{1}{2}$ mile southwest of Green's Landing, Hancock county.
Hallowell Central Granite Works	Hallowell, Kennebec county	$2\frac{1}{2}$ miles northwest of Hallowell, Kennebec county.
Hallowell Granite Works	do	2 miles west of Hallowell, Kennebec county.
Alonzo Abbott	Hancock, Hancock county	(a) Mount Desert, east side Somes sound, $\frac{1}{2}$ mile northeast of Sound post office, Hancock county. (b) West Sullivan, Hancock county.
N. W. Fish	Jonesborough, Washington county	1 mile northwest of Jonesborough, Washington county.
Marston & Gilman	do	$1\frac{1}{2}$ mile west of Jonesborough, Washington county.
Lewiston Monumental Works	Lewiston, Androscoggin county	4 miles south of Lewiston, Androscoggin county.
Millbridge Paving Co.	Millbridge, Washington county	1 mile northeast of Millbridge, Washington county.
Richard R. Babbidge	Mount Desert, Hancock county	West shore Somes sound, $2\frac{1}{2}$ miles south of Mount Desert post office, Hancock county.
Seth W. Babbidge	do	do.
Blaisdell & Joy	do	do.
Brown & Freeman	do	West shore Somes sound, $2\frac{1}{4}$ miles south of Mount Desert post office, Hancock county.
John J. Carr	do	3 miles south of Somesville, Hancock county.
J. P. & T. W. Gordon	do	West shore Somes sound, 3 miles south of Mount Desert post office, Hancock county.
W. J. Richardson	do	Mount Desert, west shore Somes sound, Hancock county.
Whiting & Allen	do	Somes sound, $2\frac{1}{4}$ miles south of Mount Desert post office, Hancock county.
B. A. Parker	North Berwick, York county	South Berwick, York county.
Graves Bros.	Northeast Harbor, Hancock county	Mount Desert, $\frac{3}{4}$ mile northwest of Northeast Harbor, Hancock county.
F. L. Billings	North Jay, Franklin county	1 mile east of North Jay, Franklin county.
Bryant Bros.	do	$\frac{1}{2}$ mile east of North Jay, Franklin county.
L. L. Howard, jr.	Norway, Oxford county	Pike's hill, Norway, Oxford county.
J. E. Long	do	Norway, Oxford county.
M. M. O'Connor	do	2 miles north of Norway, Oxford county.
Casco Bay Granite Co.	Portland, Cumberland county	White's cove, Casco bay, 10 miles from Portland, Cumberland county.
Maine Central Railroad Co.	do	North Jay, Franklin county.
F. P. Freeman	Pretty Marsh, Hancock county	Mount Desert, $\frac{3}{4}$ mile southeast of Pretty Marsh, Hancock county.
A. L. Heagan	do	Mount Desert, 1 mile west of Pretty Marsh, Hancock county.
Maine Red Granite Co.	Red Beach, Washington county	$\frac{1}{2}$ mile west of Red Beach, Washington county.
S. Almond	Saint Stephen, New Brunswick	4 miles southeast of Calais, Washington county.
Booth Bros. and Hurricane Isle Granite Co. (a)	60 Bank street, New York city	Two quarries in Saint George, Knox county. One quarry in Hurricane island, Penobscot bay, Knox county. One quarry in Long Cove, Saint George, Knox county.
Bodwell Granite Co.	Rockland Knox county	Eight quarries in Vinal Haven, Knox county. One quarry in South Thomaston, Knox county. One quarry in Saint George, Knox county. One quarry in Jonesborough, Washington county.
Wm. P. Hurley	do	(a) South Thomaston, Knox county. (b) Saint George, Knox county. (c) Clark's island, near Saint George, Knox county.
H. K. Griggs	Saccarappa, Cumberland county	2 miles north of Saccarappa, Cumberland county.

a See also Connecticut.

DIRECTORY OF GRANITE PRODUCERS—CONTINUED.

MAINE—CONTINUED.

NAMES OF FIRMS.	POST-OFFICE ADDRESS.	LOCATION OF QUARRY.
Clark's Island Granite Works.....	Saint George, Knox county.....	Clark's island, Knox county.
Robinson & Gilchrist.....	do.....	1½ mile east of Saint George, Knox county.
J. Whitney Grindell.....	Sargentville, Hancock county.....	3 miles northwest of Sargentville, Hancock county.
A. L. Brown.....	Sound, Hancock county.....	East side Somes sound, 1 mile southwest of Sound post office, Hancock county.
Higgins & Graham.....	do.....	Mount Desert, Sound post office, Hancock county.
Arthur A. Murphy.....	do.....	East side Somes sound, ¾ mile southwest of Sound post office, Hancock county.
E. P. Gamage.....	South Bristol, Lincoln county.....	2 miles north of South Bristol, Lincoln county.
Chatto & Condon.....	South Brooksville, Hancock county.....	South Brooksville, near post office, Hancock county.
Lawton Emmons & Co.....	South Norridgewock, Somerset Co.....	3 miles south of Norridgewock, Somerset county.
Joseph Taylor.....	do.....	3 miles south of Norridgewock, Somerset county.
J. H. Linscott.....	South Paris, Oxford county.....	5 miles west of North Norway, Oxford county.
Anderson & Conant.....	South Thomaston, Knox county.....	¾ mile south of South Thomaston, Knox county.
H. P. Babb.....	do.....	South Thomaston, near Weskeag river, Knox county.
N. C. Bassick & Sons.....	do.....	2 miles south of South Thomaston, Knox county.
Brown & Wade.....	do.....	1 mile southwest of South Thomaston, Knox county.
Thos. R. Drew & Sons.....	do.....	(a) 1½ mile east of South Thomaston, Knox county. (b) 1 mile southwest of South Thomaston, Knox county.
George Green & Co.....	do.....	Saint George, Knox county.
Patrick Maloney & Co.....	do.....	1½ mile southwest of South Thomaston, Knox county.
Merrick Sawyer.....	do.....	Spruce Head island, 1½ miles from Spruce Head post office, Knox county.
Wm. D. Barrell.....	South Turner, Androscoggin county.....	¼ mile from South Turner post office, Androscoggin county.
Freeman's Granite Co.....	Southwest Harbor, Hancock county.....	West shore Somes sound, 2½ miles south of Mount Desert post office, Hancock county.
Dunbar Bros.....	Sullivan, Hancock county.....	West Sullivan, Hancock county.
J. P. Armbrust.....	Vinal Haven, Knox county.....	Vinal Haven, Knox county.
A. J. Barton.....	do.....	do.
Black & Monroe.....	do.....	do.
Fred. Brown.....	do.....	2 miles north of Vinal Haven, Knox county.
George Smith.....	do.....	Argy's harbor, South Fox island, 1½ miles east of Vinal Haven post office, Knox county.
Dodlin Granite Co.....	Waterville, Kennebec county.....	2½ miles southwest of South Norridgewock, Somerset county.
J. F. Gordon.....	Wayne, Kennebec county.....	1½ mile southeast of Wayne, Kennebec county.
R. H. Williams.....	West Franklin, Hancock county.....	¼ mile west of West Franklin, Hancock county.
Crabtree & Havey.....	West Sullivan, Hancock county.....	½ mile northwest of West Sullivan, Hancock county.
Hooper & Havey.....	do.....	¾ mile northwest of West Sullivan, Hancock county.
G. W. Pettengill & Son.....	do.....	(a) 1½ mile northwest of West Sullivan, Hancock county. (b) Burnt Coat harbor, Swan's island, ¼ mile from Swan's Island post office, Hancock county.
C. A. Stimson.....	do.....	¾ mile northeast of West Sullivan, Hancock county.
Alexander Taylor.....	do.....	West Sullivan, District No. 1, Hancock county.
Brown, McAllister & Co.....	431 West Fourteenth street, New York city.....	¾ mile east of Round pond, Lincoln county.
E. C. Jewett.....	Whitefield, Lincoln county.....	2 miles north of King's Mills post office, Whitefield, Lincoln county.
Waldoboro' Granite Co.....	Waldoboro', Lincoln county.....	Waldoboro', Lincoln county.
E. D. Freeman.....	Yarmouth, Cumberland county.....	3 miles north from Yarmouthville, Cumberland county.
C. H. Hodsdon & Son.....	Yarmouthville, Cumberland county.....	2 miles southwest of Pownal Centre, Cumberland county.
Horace G. Ross.....	do.....	3½ miles northeast from Yarmouthville post office, Cumberland county.

MARYLAND.

James H. Atkinson.....	14 North street, Baltimore.....	Northern limits of Baltimore, Baltimore county.
Bergman & Peeddicord.....	Cor. Washington street and Boundary avenue, Baltimore.....	Ifall spring, ¼ mile west of Harford road, Baltimore county.
John Curley.....	1007 Park avenue, Baltimore.....	¼ mile north of Md. C. R. R. station, Baltimore, Baltimore co.
H. Fox.....	25 Jackson street, Baltimore.....	3 miles north of city limits, on Harford road, Baltimore county.
Guilford and Waltersville Granite Co.....	1416 North Charles street, Baltimore.....	(a) ¼ mile east of Granite, Baltimore county. (b) 4 miles north of Annapolis Junction, Howard county.
J. Harris.....	1327 Park avenue, Baltimore.....	Falls road, Baltimore, Baltimore county.
Jones & Thorne.....	Baltimore.....	½ mile north of Md. C. R. R. station, Hillon road, Baltimore co.
D. Leonard.....	320 Old Frederick road, Baltimore.....	½ mile west of Baltimore, Baltimore county.
John G. Schwind.....	712 Rayner avenue, Baltimore.....	Calverton, 2 miles west of Baltimore, Baltimore county.
A. H. Wight & Co.....	7 North Calvert street, Baltimore.....	Northern limits of Baltimore, near Huntingdon avenue, Baltimore county.
Woodstock Granite Co.....	700 West Pratt street, Baltimore.....	In Baltimore county, 1½ mile north of Woodstock station, B. & O. R. R.

DIRECTORY OF GRANITE PRODUCERS—CONTINUED.

MARYLAND—CONTINUED.

NAMES OF FIRMS.	POST-OFFICE ADDRESS.	LOCATION OF QUARRY.
C. F. Rappanior	Ellicott City, Howard county	In Baltimore county, $\frac{1}{2}$ mile from Ellicott City.
Werner Bros.	do	In Baltimore county, $\frac{1}{4}$ mile east of Ellicott City.
J. J. McCann	Govanstown, Baltimore county	Govanstown, 2 miles north of Baltimore, Baltimore county.
Oliver & Peach	Granite, Baltimore county	$\frac{1}{2}$ mile north of Granite, Baltimore county.
Wm. F. Weller	do	In Baltimore county, $1\frac{1}{4}$ mile east of Woodstock station, B. & O. R. R.
H. E. Shimp	Greenwood, Baltimore county	$1\frac{1}{4}$ mile east of Summerfield, Baltimore county.
Benjamin Kepner	Port Deposit, Cecil county	Port Deposit, Cecil county.
McClenahan & Bro.	do	do.
M. C. Pyle & Son	Pylesville, Harford county	$\frac{1}{4}$ mile southeast of Pylesville, Harford county.
Wm. E. Cavey	Woodstock, Howard county	1 mile north of Woodstock, in Baltimore county.
A. G. Morris & Co.	Avondale, Chester county, Pa.	$\frac{1}{2}$ mile southeast of Leslie, Cecil county.

MASSACHUSETTS.

Massachusetts Agricultural College	Amherst, Hampshire county	3 miles east of Amherst, Hampshire county.
John Shaw & Son	do	do.
William Hogan	Ashland, Middlesex county	$1\frac{1}{2}$ mile west of Ashland, Middlesex county.
Cape Ann Granite Co.	Bay View, Essex county	$3\frac{1}{4}$ mile east of Bay View, Essex county.
Asa Hood	do	$\frac{1}{2}$ mile east of Bay View, Essex county.
Thomas Fitzgibbon	Beverly, Essex county	$1\frac{1}{2}$ mile southwest of Beverly, Essex county.
Connolly Bros.	Beverly Farms, Essex county	$\frac{1}{2}$ mile southwest of Beverly Farms, Essex county.
D. Linnahan & Son	do	do.
Lawrence Watson	do	do.
Granite Railway Company (a)	31 Pemberton square, Boston	West Quincy, Norfolk county.
S. A. Lovejoy	7 Exchange place, Boston	$1\frac{1}{2}$ mile north of Braintree, Norfolk county.
Wm. Sherman	Braggville, Middlesex county	$\frac{1}{2}$ mile south of Braggville, Middlesex county.
T. N. Sherman & Co.	do	$1\frac{1}{4}$ mile east of Milford, Worcester county.
Chester Granite Works	Chester, Hampden county	3 miles south of Chester, Hampden county.
Timothy Keefe	do	Berkshire county, 3 miles west of Chester.
J. H. Adams	Dalton, Berkshire county	$1\frac{1}{2}$ mile east of Becket, Berkshire county.
Horace M. Scott	Danvers, Essex county	$\frac{1}{2}$ mile south of Peabody, Essex county.
Richard Delaney	Dedham, Norfolk county	$1\frac{3}{4}$ mile west of Dedham station, Norfolk county.
John Frawley	Erving, Franklin county	Warwick, Franklin county.
Wm. Beattie	Fall River, Bristol county	1 mile east of Fall River, Bristol county.
Fall River Granite Co.	do	7 miles northeast of Fall River, Bristol county.
Chauncey H. Sears	do	1 mile southeast of Fall River, Bristol county.
Nathaniel G. Thurston	do	Ward 8, Fall River, Bristol county.
J. B. Wilnot	do	$1\frac{1}{2}$ mile northeast of Fall River, Bristol county.
G. A. Ferrell	Fitchburg, Worcester county	Rollstone hill, Fitchburg, Worcester county.
F. A. Hale	do	do.
James Kane	do	do.
Litchfield Bros.	do	Fitchburg, Worcester county.
F. A. McCauliff & Co.	do	Rollstone hill, Fitchburg, Worcester county.
John Landy & Bro.	Florence, Hampshire county	$\frac{1}{4}$ mile from Florence, Hampshire county.
W. P. Latham	do	Florence, Hampshire county.
Smith & Daniels	Foxborough, Norfolk county	2 miles southeast of Wrentham, Norfolk county.
Joseph C. Cloyes	Framingham, Middlesex county	2 miles southwest of Framingham, Middlesex county.
D. Rusk & Co.	Gloucester, Essex county	$\frac{3}{4}$ mile west of Gloucester, Essex county.
A. B. Loomis	Goshen, Hampshire county	3 miles west of Goshen, Hampshire county.
E. W. Willcut	do	Goshen township, Hampshire county.
C. M. Cummings	Graniteville, Middlesex county	1 mile west of Graniteville, Middlesex county.
M. F. Downs	do	$1\frac{1}{2}$ mile west of North Chelmsford, Middlesex county.
Samuel Fletcher	do	1 mile west of Forge Village, Middlesex county.
Lewis P. Palmer	do	$\frac{1}{2}$ mile northwest of Graniteville, Middlesex county.
Wm. Reed	do	do.
Hammett D. Wright	do	$\frac{1}{2}$ mile north of Graniteville, Middlesex county.
Daniel Phipps	Holliston, Middlesex county	2 miles north of Holliston, Middlesex county.
Milford Granite Co.	Hopedale, Worcester county	$1\frac{1}{2}$ mile northeast of Milford, Worcester county.
E. J. Prescott	Hudson, Middlesex county	1 mile northeast of West Acton, Middlesex county.
John B. Dodd	Jeffersonville, Worcester county	1 mile west of Holden, Worcester county.
Daniel Cahill	Lanesville, Essex county	$\frac{1}{4}$ mile southwest of Lanesville, Essex county.
Wm. R. Cheves	do	1 mile south of Lanesville, Essex county.
John G. Chick, jr.	do	$\frac{3}{4}$ mile south of Lanesville, Essex county.

a See also New Hampshire.

DIRECTORY OF GRANITE PRODUCERS—CONTINUED.
MASSACHUSETTS—CONTINUED.

NAMES OF FIRMS.	POST-OFFICE ADDRESS.	LOCATION OF QUARRY.
John D. Courcey, jr.	Lanesville, Essex county	$\frac{3}{4}$ mile southeast of Lanesville, Essex county.
Henry Moorings	do	$\frac{1}{2}$ mile south of Lanesville, Essex county.
Francis Reid	do	$\frac{1}{2}$ mile southeast of Lanesville, Essex county.
Rowley & Hauscome	do	$\frac{3}{4}$ mile south of Lanesville, Essex county.
Ezra Sherburne	do	$\frac{1}{2}$ mile east of Lanesville, Essex county.
James J. Vernon	do	$\frac{1}{2}$ mile northeast of Bay View, Essex county.
Lock & Jones	Lawrence, Essex county	(a) 3 miles southwest of Lawrence, Essex county. (b) $\frac{1}{2}$ mile southwest of Lawrence, Essex county.
W. D. Blanchard & Co	Leominster, Worcester county	$1\frac{1}{2}$ mile southwest of Leominster Centre, Worcester county.
Kittredge & Leavitt	do	$2\frac{1}{2}$ miles west of Leominster Centre, Worcester county.
Sweatt & Davis	Lowell, Middlesex county	$2\frac{1}{2}$ miles west of North Chelmsford, Middlesex county.
S. L. Ward	do	On line between Lowell and Dracut, Middlesex county.
A. R. Blethen & Co.	Lynn, Essex county	3 miles south of Peabody, Essex county.
James Heath	do	3 miles north of Lynn, Essex county.
John Sheehan	do	$3\frac{1}{2}$ miles northeast of Peabody, Essex county.
James A. Rumsdell	Lynnfield, Essex county	1 mile west of Lynnfield, Essex county.
Martin Hawkins	Medford, Middlesex county	$1\frac{1}{2}$ mile north of Medford, Middlesex county.
Samuel B. Tay	do	$1\frac{1}{4}$ mile west of Medford, Middlesex county.
Nicholas White	do	$\frac{1}{8}$ mile northwest of Medford, Middlesex county.
G. Crofton	Milford, Worcester county	1 mile north of Milford, Worcester county.
John Cuddihy	do	1 mile northeast of Milford, Worcester county.
Milford Pink Granite Co	do	$1\frac{1}{2}$ mile northeast of Milford, Worcester county.
Peter Ross	do	$2\frac{1}{2}$ miles north of Milford, Worcester county.
James S. Shermau	do	Worcester county, 1 mile west of Braggville.
Henry J. Rice	Milton, Norfolk county	$1\frac{1}{2}$ mile south of Milton, Norfolk county.
W. N. Flynt Granite Co.	Monson, Hampden county	1 mile north of Monson, Hampden county.
Lemay & Tetro	Nashua, N. H.	$1\frac{1}{4}$ mile north of Dunstable station, Middlesex county.
John Bertram	New Bedford, Bristol county	3 miles northwest of New Bedford, Bristol county.
Brownell & Murkland	do	do.
Abiathar Rogers	do	do.
Thomas McCarty	North Acton, Middlesex county	1 mile west of North Acton, Middlesex county.
North Acton Granite Co	do	$\frac{1}{2}$ mile north of North Acton, Middlesex county.
Samuel Fowler	Northbridge, Worcester county	Northbridge, Worcester county.
Brown Bros	North Chelmsford, Middlesex county	$1\frac{1}{2}$ mile southeast of Tyngsborough, Middlesex county.
C. W. Carkin	do	2 miles west of North Chelmsford, Middlesex county.
Perley A. Carkin	do	$2\frac{3}{4}$ miles southwest of North Chelmsford, Middlesex county.
Marinell & Willstead	do	2 miles northwest of North Chelmsford, Middlesex county.
J. F. Allen	Northfield Farms, Franklin county	Northfield Farms, Franklin county.
B. J. Blanchard	North Uxbridge, Worcester county	$\frac{1}{4}$ mile from North Uxbridge station, Worcester county.
Lamson & Woodbury	Oxford, Worcester county	$4\frac{1}{2}$ miles from Oxford, Worcester county.
John Linchan	Peabody, Essex county	$1\frac{3}{4}$ mile southwest of Peabody, Essex county.
Henry A. Newhall	do	2 miles west of Peabody, Essex county.
Bryant, Lurvey & Co.	Pigeon Cove, Essex county	$\frac{1}{4}$ mile west of Pigeon Cove, Essex county.
Edward Canney	do	Pigeon Cove, Essex county.
James Edmunds	do	$\frac{1}{2}$ mile south of Pigeon Cove, Essex county.
Charles Guidet	do	1 mile southeast of Lanesville, Essex county.
Norman E. Mayo	do	$\frac{1}{4}$ mile northwest of Pigeon Cove, Essex county.
Stephen M. Morse	do	Pigeon Cove, Essex county.
Pratt & Stuart	do	$\frac{1}{2}$ mile southwest of Pigeon Cove, Essex county.
H. A. Story	do	$\frac{1}{2}$ mile west of Pigeon Cove, Essex county.
George Umlah & Co.	do	1 mile southwest of Pigeon Cove, Essex county.
S. N. Waite & Son	do	$\frac{3}{4}$ mile west of Pigeon Cove, Essex county.
J. T. Tank	Providence, R. I.	1 mile east of Whitinsville, Worcester county.
Wm. P. Barker, successor to Henry Barker & Sons	Quincy, Norfolk county	$\frac{3}{4}$ mile southeast of Lanesville, Essex county.
Churchill & Hitchcock	do	(a) $1\frac{1}{2}$ mile southwest of Quincy, Norfolk county. (b) $\frac{1}{2}$ mile northeast of West Quincy, Norfolk county.
Craig & Richards Granite Co.	do	1 mile northwest of South Quincy station, O. C. R. R., Norfolk county.
Frederick & Field	do	$\frac{3}{4}$ mile southwest of Quincy, Norfolk county.
Galvin Granite Co.	do	Quincy, Norfolk county.
Glencoe Granite Co.	do	3 miles southwest of West Quincy, Norfolk county.
C. H. Hardwick & Co.	do	$\frac{3}{4}$ mile west of Quincy, Norfolk county.
Charles Johnson & Bro	do	Quincy, Norfolk county.
McDonnell & Sons	do	1 mile west of Quincy, Norfolk county.
McDonald & Turner	do	$\frac{1}{2}$ mile west of West Quincy, Norfolk county.

DIRECTORY OF GRANITE PRODUCERS—CONTINUED.

MASSACHUSETTS—CONTINUED.

NAMES OF FIRMS.	POST-OFFICE ADDRESS.	LOCATION OF QUARRY.
McKenzie & Patterson	Quincy, Norfolk county	1½ mile west of Quincy, Norfolk county.
Merry Mountain Granite Co.	do	1½ mile northwest of Quincy, Norfolk county.
Milne, Chalmers & Co.	do	2 miles west of West Quincy, Norfolk county.
Swithin Bros.	do	On southwest line, between West Quincy and Milton, Norfolk county.
S. B. Corliss	Randolph, Norfolk county	1½ mile southeast of Randolph, Norfolk county.
Lanesville Granite Co.	Rockport, Norfolk county	¼ mile east of Lanesville, Essex county.
Pigeon Hill Granite Co.	Rockport, Essex county	Rockport, Essex county.
Rockport Granite Co.	do	¾ mile northwest of Rockport, Essex county.
J. H. Merrill & Son	Salem, Norfolk county	2½ miles west of Peabody, Essex county.
James Welch	do	(a) 1¼ mile east of Beverly, Essex county. (b) ¾ mile west of Beverly, Essex county.
John Moyle	Sharon, Norfolk county	3 miles southeast of South Sharon, Norfolk county.
Ambrose Gillman	Shelburne Falls, Franklin county	1 mile west of Shelburne Falls, Franklin county.
Lewis Brown	South Peabody, Essex county	1½ mile west of Peabody, Essex county.
C. W. & G. W. Davis	do	1 mile west of South Peabody, Essex county.
Wright, Lyons & Co.	Springfield, Hampden county	1 mile west of Shelburne Falls, Franklin county.
Thomas R. Newhall	Wakefield, Essex county	½ mile southeast of Lynnfield, Essex county.
Jeremiah Sheehan	Warnersville, Middlesex county	¼ mile east of Concord Junction station, Middlesex county.
Arthur F. Hiscox	Webster, Worcester county	4 miles northwest of Webster, Worcester county.
William Y. Woodbury	do	4 miles west of Oxford, Worcester county.
H. E. Fletcher & Co.	West Chelmsford, Middlesex county	1¾ mile northwest of West Chelmsford, Middlesex county.
Nathan P. Prescott & Son	Westford, Middlesex county	3 miles northwest of North Chelmsford, Middlesex county.
Badger Bros.	West Quincy, Norfolk county	West Quincy, Norfolk county.
Chrystall Bros.	do	do.
Eleock & Sons	do	do.
Jones & Desmond	do	¾ mile southwest of West Quincy, Norfolk county.
Quincy Granite Co.	do	1 mile west of West Quincy, Norfolk county.
Alphonso Reinhalter	do	West Quincy, Norfolk county.
John B. Reinhalter	78 Copeland street, West Quincy, Norfolk county.	do.
O. T. Rogers Granite Co.	West Quincy, Norfolk county	¼ mile north of West Quincy, Norfolk county.
Rouleau Bros.	do	¾ mile southwest of West Quincy, Norfolk county.
Townsend & Clements	do	½ mile west of West Quincy, Norfolk county.
George M. Blanchard	Whitinsville, Worcester county	¼ mile south of Whitinsville, Worcester county.
Clark & Aronson	Wilmington, Middlesex county	1 mile west of Wilmington, Middlesex county.
J. S. Ballard	Worcester, Worcester county	¾ mile east of Worcester, Worcester county.
Darling Bros.	do	2 miles north of Milford, Worcester county.
Norcross Bros.	do	1½ mile north of Milford, Worcester county.
George D. Webb	do	1¼ mile northeast of Worcester, Worcester county.

MINNESOTA.

M. M. Williams	Little Falls, Morrison county	1½ mile northwest of Little Falls, Morrison county.
James Baxter & Son	Minneapolis, Hennepin county	1¼ mile east of Ortonville, Big Stone county.
Minnesota Granite and Polishing Co.	315 Rochester Block, Minneapolis	Section 19, township 124, range 28, Stearns county.
New Ulm Stone Co.	New Ulm, Brown county	2 miles east of New Ulm, Nicollet county.
Anderson & Co.	Saint Cloud, Stearns county	2 miles west of Saint Cloud, Stearns county.
Carlston Bros. & Co.	do	3 miles southwest of Saint Cloud, Stearns county.
Northern Granite Co.	do	2 miles north of Sauk Rapids, Benton county.
A. Gustafsson	do	In Sherburne county, 2½ miles southeast of Saint Cloud.
G. J. Hilder	do	In Sherburne county, 2 miles southeast of Saint Cloud.
Holes Bros.	do	4 miles west of Saint Cloud, Stearns county.
Minnesota State Reformatory	do	3 miles southeast of Saint Cloud, Stearns county.
John Nevins' Son & Ashworth	do	3 miles south west of Saint Cloud, Stearns county.
J. B. Robinson	do	(a) 4 miles southwest of Saint Cloud, Stearns county. (b) 4½ miles southwest of Saint Cloud, Stearns county.
Saint Cloud Granite Co.	do	4 miles southwest of Saint Cloud, Stearns county.
Saint Paul Granite Co.	Saint Paul, Ramsey county	Ortonville, Big Stone county.
T. M. Breen	do	(a) In Sherburne county, 4 miles east of Saint Cloud. (b) 5 miles west of Saint Cloud, Stearns county.
Drake Co.	do	(a) In Benton county, 3 miles east of Saint Cloud. (b) ½ mile east of Sauk Rapids, Benton county.
Cameron & Co.	Sauk Rapids, Benton county	In Benton county, east of Saint Cloud.

DIRECTORY OF GRANITE PRODUCERS—CONTINUED.

MISSOURI.

NAMES OF FIRMS.	POST-OFFICE ADDRESS.	LOCATION OF QUARRY.
J. S. Benson	Annapolis, Iron county	4 miles southeast of Annapolis, Iron county.
Sheahan Bros	Graniteville, Iron county	Graniteville, Iron county.
Syenite Granite Co	do	3½ miles west of Middlebrook, Iron county.
The Ph. W. Schneider Granite Co	do	Tenth district, Iron county.
La Motte Granite Co	Kansas City	Skrainka, Madison county.
Shehan Bros	Piedmont, Wayne county	1½ mile north of Piedmont, Wayne county.
Skrainka Construction Co	404 Market street, Saint Louis	Knob Lick, Saint François county.
Stifel & Rockert	Saint Louis	Granite bend, Kerrigan post office, Wayne county.
Milne & Gordon	Syenite, Saint François county	(a) ¼ mile from Syenite, Saint François county. (b) ¼ mile west of Cornwall station, Madison county.

MONTANA.

Montana Granite Co	Helena, Lewis and Clarke county	10 miles northeast of Helena, Lewis and Clarke county.
--------------------	---------------------------------	--

NEVADA.

John Barrett	Reno, Washoe county	½ mile west of Washoe City, Washoe county.
--------------	---------------------	--

NEW HAMPSHIRE.

F. J. Fuller	Amherst Station, Hillsborough county.	½ mile west of Amherst station, Hillsborough county.
B. A. Haselton	Auburn, Rockingham county	½ mile west of Auburn, Rockingham county.
G. W. Reed & Co	do	¼ mile southwest of Auburn, Rockingham county.
F. R. French	Bedford, Hillsborough county	½ mile north of Bedford, Hillsborough county.
Ola Anderson	Concord, Merrimack county	2 miles northwest of Concord, Merrimack county.
Collins Bros	do	2 miles north of Concord, Merrimack county.
Granite Railway Company (a)	do	Concord, Merrimack county.
New England Granite Works	Hartford, Conn	1 mile west of Concord, Merrimack county.
W. H. Perry	Concord, Merrimack county	1½ mile north of Concord, Merrimack county.
J. F. Rooney & Co	do	1 mile from Grafton Centre, Grafton county.
Sargent & Sullivan	do	1 mile west of Concord, Merrimack county.
J. S. Abbott	Dover, Strafford county	1 mile east of Durham, Strafford county.
William L. Elder	do	Between Rochester and Dover, Strafford county.
George & Langmaid	do	Rockingham county, 2 miles southeast of Leo hill.
Hall & Emerson	do	5 miles south of Dover, Strafford county.
D. & C. P. Chesley	Durham, Strafford county	1 mile southwest of Durham, Strafford county.
Wells & Flanders	Enfield, Grafton county	1¼ mile east of Enfield post office, Grafton county.
P. T. Pride & Son	Farmington, Strafford county	½ mile east of Farmington post office, Strafford county.
J. E. Fisher	Fitzwilliam, Cheshire county	½ mile southeast of Fitzwilliam, Cheshire county.
D. T. Hayden & Co	do	1¼ mile southeast of Fitzwilliam, Cheshire county.
Daniel H. Reid	do	¾ mile southwest of Fitzwilliam Depot, Cheshire county.
R. L. Angier & Co	Fitzwilliam Depot, Cheshire county	¾ mile north of Fitzwilliam Depot, Cheshire county.
E. Blodgett & Co	do	1 mile southwest of Fitzwilliam Depot, Cheshire county.
Dunn Bros	do	½ mile east of Fitzwilliam Depot, Cheshire county.
H. C. White	do	1½ mile from Fitzwilliam Depot, Cheshire county.
Peter Dana	Franklin, Merrimack county	3½ miles from Grafton, Grafton county.
Spence & Coombs	Great Falls, Strafford county	1 mile west of Great Falls, Strafford county.
Huntington & Sullivan	Hanover, Grafton county	1 mile east of Hanover, Grafton county.
Stephen C. Leazer	Haverhill, Grafton county	1 mile south of Haverhill, Grafton county.
D. J. Winn	do	1½ mile from Haverhill, Grafton county.
George D. Webb	Worcester, Mass	(a) 1½ mile west of Fitzwilliam, Cheshire county. (b) 1½ mile southeast of Marlborough, Cheshire county.
Roxbury Granite Co	Keene, Cheshire county	2 miles east of Keene, Cheshire county.
Troy Granite Co	Worcester, Massachusetts	Troy, Cheshire county.
P. H. Freeto	Lebanon, Grafton county	1¼ mile north of Lebanon, Grafton county.
F. B. Kendrick	do	1½ mile north of Lebanon, Grafton county.
Amoskeag Manufacturing Co	Manchester, Hillsborough county	1½ mile northeast of Manchester, Hillsborough county.
Frank S. Bodwell	do	2 miles northeast of Manchester, Hillsborough county.
Fitchburg Railroad Co	Boston, Mass	½ mile northwest of Pratt's station, Hillsborough county.
M. Fitzgerald	Manchester, Hillsborough county	3½ miles southwest of Manchester, Hillsborough county.
Warren Harvey	do	2 miles northeast of Manchester, Hillsborough county.

^a See also Massachusetts.

DIRECTORY OF GRANITE PRODUCERS—CONTINUED.

NEW HAMPSHIRE—(CONTINUED).

NAMES OF FIRMS.	POST-OFFICE ADDRESS.	LOCATION OF QUARRY.
Waterman Smith	Manchester, Hillsborough county	1 mile east of Manchester, Hillsborough county.
R. P. Stevens & Co.	do	4 miles west of Manchester, Hillsborough county.
Horace Willey	do	1½ mile north of Manchester, Hillsborough county.
John B. Bishop	Milford, Hillsborough county	2 miles northwest of Milford, Hillsborough county.
Bishop & Shaloo	do	Milford, Hillsborough county.
Albert E. Carlton	do	1½ mile northwest of Milford, Hillsborough county.
Fields & McGregor	do	1½ mile southeast of Milford, Hillsborough county.
L. K. Hutchinson	do	1¾ mile northwest of Milford, Hillsborough county.
Edward G. Kittredge	do	2 miles northwest of Milford, Hillsborough county.
E. G. Kittredge & Co.	do	2 miles southwest of Milford, Hillsborough county.
George McFarlane	Quincy, Mass.	1 mile northeast of Milford, Hillsborough county.
John B. Melendy	Milford, Hillsborough county	2 miles south of Milford, Hillsborough county.
Nathan Merrill	do	2 miles southwest of Milford, Hillsborough county.
Miller & Luce	West Quincy, Mass.	1½ mile south of Milford, Hillsborough county.
George F. Parker	Milford, Hillsborough county	2 miles northwest of Milford, Hillsborough county.
Newton Perham	do	1 mile north of Amherst, Hillsborough county.
Jerome Sawyer (estate of)	do	½ mile north of Milford, Hillsborough county.
W. H. Young & Son	do	2 miles southeast of Milford, Hillsborough county.
Alexander McDonald & Son	Mount Auburn, Cambridge, Mass.	1¼ mile east of Mason, Hillsborough county.
V. C. Gilman	Nashua, Hillsborough county	¾ mile northeast of South Lyndeborough, Hillsborough county.
Charles W. Stevens	do	1 mile southwest of Nashua, Hillsborough county.
S. S. Ordway & Co.	North Enfield, Grafton county	4 miles northwest of North Enfield, Grafton county.
Frank Blasdell	North Conway, Carroll county	2½ miles from North Conway, Carroll county.
Thomas Lohay	Haverhill, Mass.	1½ mile south of Conway, Carroll county.
White Mountain Granite Co.	Quincy, Grafton county	¼ mile southeast of Quincy, Grafton county.
Maine and New Hampshire Granite Co (a)	Redstone, Carroll county	2½ miles southeast of North Conway, Carroll county.
Silas Hussey	Rochester, Strafford county	2 miles southeast of Rochester, Strafford county.
W. H. Keniston & Son	Rumney, Grafton county	1¼ mile north of Rumney, Grafton county.
Sunapee Granite Co.	Sunapee, Sullivan county	½ mile south of Sunapee, Sullivan county.
Charles A. Bailey	Suncook, Merrimack county	1½ mile east of Suncook, Merrimack county.
Frank C. Blodgett	West Concord, Merrimack county	¼ mile south of West Concord, Merrimack county.
Crowley & Quinn	do	¼ mile south of West Concord, Merrimack county.
Gay Bros.	do	1½ mile south of West Concord, Merrimack county.
Abijah Hollis	do	½ mile south of West Concord, Merrimack county.
A. J. Holmes	do	¾ mile southwest of West Concord, Merrimack county.
Benjamin T. Putney	do	½ mile south of West Concord, Merrimack county.
Swenson & French	do	1½ mile northwest of Concord, Merrimack county.
H. F. Trussell & Son	do	2½ miles north of Concord, Merrimack county.
Charles Hesselton	Wilton, Hillsborough county	1 mile southwest of Wilton, Hillsborough county.
Boston and Maine Railroad Co.	Wolfborough Junction, Carroll county.	2½ miles southwest of Conway, Carroll county.

NEW JERSEY.

York & Bittenbender	Belvidere, Warren county	2½ miles south of Oxford, Warren county.
C. A. De Camp	Boonton, Morris county	1 mile north of Boonton, Morris county.
Lyman H. Pierson	Chester, Morris county	¼ mile northwest of German valley, Morris county.
James H. Murphy	Flemington, Hunterdon county	3 miles northwest of Hopewell, Mercer county.
C. A. Lighthipe & Son	Milburn, Essex county	½ mile northeast of Milburn station, Essex county.
B. M. & J. F. Shanley (b)	Newark, Essex county	(a) Berger Cut, Jersey City, Hudson county. (b) 1 mile north of Kingston, Somerset county. (c) 1 mile southeast of Lambertville, Hunterdon county. (d) Byram, Hunterdon county.
Waterloo Ice Co.	30 Plane street, Newark	2 miles southeast of Andover, Sussex county.
Thomas Nevins & Son	Orange, Essex county	(a) ½ mile north of Dover, Morris county. (b) ¼ mile north of Summit, Union county. (c) 1¼ mile north of West Orange, Essex county.
John O'Rourke	do	¾ mile west of West Orange, Essex county.
Wright & Lindsley	do	2 miles east of Little Falls, Passaic county.
McKiernan & Bergin	60 Prince street, Paterson, Passaic county.	(a) 3 miles northwest of Paterson, Passaic county (b) Paterson, Passaic county.
Philadelphia and Reading Railroad	227 South Fourth street, Philadelphia, Pa.	1½ mile west of Hopewell, Mercer county.
Fanwood Stone Crushing Co.	Scotch Plains, Union county	1½ mile northwest of Fanwood, Union county.
Stewart Hartshorn	Short Hills, Essex county	Springfield mountain, Union county.
Estate of Hugh Allen	Stanhope, Sussex county	1½ mile north of Waterloo, Sussex county.

a See also Maine. b See also Pennsylvania.

DIRECTORY OF GRANITE PRODUCERS—CONTINUED.

RHODE ISLAND—CONTINUED.

NAMES OF FIRMS.	POST-OFFICE ADDRESS.	LOCATION OF QUARRY.
Thompson & Platt	Westerly, Washington county	Westerly township, near Burden pond, Washington county.
Stewart & McDonald	do	1 mile southeast of Westerly, Washington county.
John P. Olney	Wickford, Washington county	1 $\frac{1}{2}$ mile south of Davisville post office, Washington county.
Patrick Ballou & Amasa Sweet	Woonsocket, Providence county	4 miles southwest of Woonsocket, Providence county.
Fairmount Farm Co.	do	$\frac{1}{2}$ mile west of Woonsocket, Providence county.

SOUTH CAROLINA.

The Winsborough Granite Co.	Charleston, Charleston county	4 miles south of Rockton, Fairfield county.
Columbia Granite Construction and Manufacturing Co.	Columbia, Richland county	Columbia, Richland county.
J. D. Hardin & Co.	do	$\frac{1}{3}$ mile south of Columbia, Richland county.
Leavell & Speer	Newberry, Newberry county	(a) 4 miles north of Newberry, Newberry county. (b) 5 miles north of Newberry, Newberry county.
A. R. Stewart	Windsborough, Fairfield county	(a) Near Windsborough, Fairfield county. (b) Near Columbia, Richland county.
York Granite Co.	Yorkville, York county	Near Yorkville, York county.

SOUTH DAKOTA.

Dell Rapids Granite Co.	Dell Rapids, Minnehaha county	$\frac{1}{2}$ mile east of Dell Rapids, Minnehaha county.
Sioux Falls Granite Co.	Sioux Falls, Minnehaha county	Sioux Falls, Minnehaha county.
John Loftus	Burlington, Iowa	do.

TEXAS.

Burnet Steam Granite Co.	Burnet, Burnet county	6 $\frac{1}{2}$ miles west of Burnet, Burnet county.
Texas Capitol Granite Co.	Granite Mountain, Burnet county	At Granite mountain, on Austin and Northwestern railroad, Burnet county.
C. O'Keefe	do	1 mile from Granite Mountain station, Burnet county.
J. K. Finlay	Llano, Llano county	3 $\frac{1}{2}$ miles southwest of Llano, Llano county.
John Goodman	do	3 $\frac{3}{4}$ miles southwest of Llano, Llano county.
Texas Mining and Improvement Co.	Marble Falls, Burnet county	1 mile from Marble Falls, Burnet county.
Frank Feich	313 Houston street, San Antonio, Bexar county.	Guadalupe mountain range, Gillespie county.

VERMONT.

James G. Brown	Barre, Washington county	$\frac{1}{2}$ mile west of East Barre, Washington county.
Carnes & Ainsworth	do	4 miles south of Barre, Washington county.
Draw, Parkhurst & Co.	do	do.
H. A. Duffy	do	do.
Empire Granite Co.	do	do.
Forsyth & Ingram	do	In Washington county, 2 $\frac{1}{2}$ miles northeast of Williamstown.
Green Mountain Granite Co.	do	$\frac{3}{4}$ mile southwest of Barre, Washington county.
Jones Bros.	do	In Washington county, 3 miles northeast of Williamstown.
S. Kimball	do	1 mile east of East Barre, Washington county.
J. W. Magoon	do	$\frac{1}{2}$ mile west of East Barre, Washington county.
Mann Bros.	do	4 miles south of Barre, Washington county.
Marr & Gordon	do	do.
Milne & Wylie	do	do.
Monumental Granite Co.	do	do.
A. D. Morse	do	Barre, Washington county.
O'Rourke & Cleary	do	4 miles south of Barre, Washington county.
H. N. Parkhurst	do	do.
E. L. Smith & Co.	do	$\frac{1}{4}$ mile northeast of Graniteville, Washington county.
Jacob B. Taylor	do	Southeast base of Millstone mountain, Washington county.
Vermont Granite Co.	do	3 miles from Barre, Washington county.
H. Webster & Son, successors to B. G. Webster	do	4 miles south of Barre, Washington county.
Wells, Lamson & Co.	do	(a) Near Barre, Washington county. (b) Williamstown, Orange county.
P. O. Wheaton	do	2 $\frac{1}{4}$ miles southeast of Barre, Washington county.
C. Dingman	Bethel, Windsor county	In Windsor county, 2 $\frac{1}{2}$ miles north of Pittsfield.
Geo. E. Lyons Granite Co.	Brattleboro', Windham county	1 mile south of West Dummerston, Windham county.

DIRECTORY OF GRANITE PRODUCERS—(CONTINUED).
VERMONT—CONTINUED.

NAMES OF FIRMS.	POST-OFFICE ADDRESS.	LOCATION OF QUARRY.
Guy N. Willard	Burlington, Chittenden county	Burlington, Chittenden county.
E. G. Hutchinson	Chester Depot, Windsor county	4½ miles north of Chester, Windsor county.
Curtis Willey	Derby Centre, Orleans county	2½ miles northwest of Derby Centre, Orleans county.
Wm. M. Carnes	East Barre, Washington county	½ mile south of East Barre, Washington county.
Harlan I. Cheney	do	do.
Guy Brothers	do	4 miles south of Barre, Washington county.
James Gazely	Albany, N. Y.	Graniteville, Washington county.
John McAulay	Graniteville, Washington county	4 miles south of Barre, Washington county.
Brush & Curtis	Hardwick, Caledonia county	2½ miles north of Woodbury, Washington county.
Hardwick Granite Co	do	1½ mile west of Hardwick, Caledonia county.
Excelsior Granite Co	Montpelier, Washington county	Near Barre mountain, Washington county.
The Wetmore & Morse Granite Co	do	Graniteville, Washington county.
C. E. Tayntor & Co	239 Broadway, New York	3 miles from Barre, Washington county.
Blue Mountain Granite Co	South Ryegate, Caledonia county	(a) 3 miles north of Ryegate, Caledonia county. (b) Groton township, Caledonia county.
Ryegate Granite Works Co	do	(a) 2½ miles north of South Ryegate, Caledonia county. (b) 1½ mile east of Hardwick, Caledonia county.
Carrick Bros. Granite Co	Saint Johnsbury, Caledonia county	Williamstown, Orange county.
R. W. Laird	do	(a) Brunswick, Essex county. (b) Barre, Washington county. (c) Woodbury, Washington county. (d) Greensboro', Orleans county. (e) Ryegate, Caledonia county.
Story & Damon	Victory, Essex county	1 mile northwest of Victory, Caledonia county.
Lester Cleveland	West Derby, Orleans county	1½ mile east of West Derby, Orleans county.
Clark Bros	West Dummerston, Windham county	1 mile east of West Dummerston, Windham county.
Williamstown Granite Co	Williamstown, Orange county	In Orange county, 1 mile south of Graniteville post office.
Woodbury Granite Co	Woodbury, Washington county	1½ mile northeast of Woodbury, Washington county.

VIRGINIA.

H. P. Gilbert	Georgetown, D. C.	Potomac river, south side, Alexandria county.
James M. Casey	Lynchburg, Campbell county	(a) 1 mile south of Lynchburg, Campbell county. (b) 2 miles southeast of Lynchburg, Campbell county.
Wm. H. Ford	do	1½ mile east of Lynchburg, Campbell county.
Wood & Co	1525 Main street, Lynchburg, Campbell county.	Brookville district, on Virginia Midland R. R., Campbell county.
A. B. Cook	Petersburg, Dinwiddie county	In Chesterfield county, 2 miles north of Petersburg.
D. W. Lassiter	do	2 miles from Petersburg, Dinwiddie county.
Petersburg Granite Quarrying Co	38 Wall street, New York city	1½ mile from Petersburg, Dinwiddie county.
Peter Copland	Richmond, Henrico county	3½ miles west of Richmond, Henrico county.
Middendorf & Donald	Virginia street, Richmond	In Chesterfield county, 3½ miles west of Richmond.
Richmond Granite Co	911 Main street, Richmond	4½ miles west of Richmond, Henrico county.
The Standard Granite Co	P. O. Box 271, Richmond	In Chesterfield county, 2½ miles southwest of Richmond.
Westham Granite Co. of Virginia	P. O. Box 177, Richmond	In Chesterfield county, 6½ miles from Richmond.

WASHINGTON.

Columbia Marble and Granite Co	Spokane Falls, Spokane county	4 miles east of Colville, Stevens county.
--------------------------------	-------------------------------	---

WISCONSIN.

Amberg Granite Co	119 La Salle street, Chicago, Ill.	(a) 2 miles northwest of Amberg, Marinette county. (b) ½ mile south of Amberg, Marinette county. (c) 1½ mile northwest of Amberg, Marinette county.
Berlin Granite Co	Berlin, Green Lake county	2 miles northeast of Berlin, Green Lake county.
Berlin and Montello Granite Co	Room 21, 162 Washington street, Chicago, Ill.	(a) ¾ mile east of Berlin, Green Lake county. (b) ¼ mile east of Montello, Marquette county.
Green Lake Granite Co	Utley, Green Lake county	Utley, Green Lake county.
R. N. Roberts	Waupaca, Waupaca county	4 miles north of Waupaca, Waupaca county.

CENSUS BULLETIN.

No. 46.

WASHINGTON, D. C.

March 27, 1891.

TRANSPORTATION.

RAILWAY STATISTICS OF THE NEW ENGLAND STATES.

DEPARTMENT OF THE INTERIOR,

CENSUS OFFICE,

WASHINGTON, D. C., March 16, 1891.

The statistics in this bulletin furnish an exhibit of the operations of railways in the New England states for the years 1880 to 1889, inclusive, and were collected by Mr. W. W. MAYBERRY, special agent, under the direction of Mr. HENRY C. ADAMS, special agent in charge of the Division of Transportation.

A summary of several items of interest pertaining to the transportation business of the New England states in 1889 is herewith presented :

ITEMS.	1880.	1880.
Number of passengers carried	103, 374, 387	52, 221, 338
Tons of freight moved	35, 295, 896	24, 003, 907
Earnings from passenger service	\$33, 477, 965	\$21, 435, 831
Earnings from freight service	\$34, 001, 568	\$25, 683, 014
Total earnings and income	\$69, 475, 055	\$49, 001, 720
Total expenditures	\$68, 909, 681	\$46, 915, 222
Length in miles of all lines operated	6, 942. 34	6, 021. 18
Total number of employés	49, 586	32, 585
Number of cars in passenger service	3, 803	2, 622
Number of cars in freight service	49, 140	35, 051
Number of locomotives	2, 151	1, 616
Number of stations on all lines	2, 283	1, 849
Receipts per mile per passenger—cents	1. 92	2. 19
Receipts per mile per ton of freight—cents	1. 47	1. 84

The seven tables appended to this bulletin embrace the mileage, equipment and stations, employés, business done, earnings and income, expenditures, and operating expenses.



Superintendent of Census.

TRANSPORTATION ON RAILWAYS IN THE NEW ENGLAND STATES.

STATISTICS FOR THE TEN YEARS ENDED 1889.

BY HENRY C. ADAMS.

This is the first of a series of ten bulletins proposed to be issued, giving in statistical form the operations of railways for the years 1880 to 1889, inclusive, and it is proper at the outset that certain statements respecting the investigation should be made.

SOURCES OF INFORMATION.—The facts contained herein were secured by means of schedules sent directly to auditors or other accounting officers of railways. The list of railways given in volume IV of the Tenth Census was accepted as a basis from which to work, and all changes, either of new roads or of new organizations of old roads reported in Poor's Manual for each of the succeeding years, were noted. In this manner a mailing list was drawn, showing the way in which every road in the country was operated during the period covered by the investigation, and all correspondence was addressed directly to the officials of each railway investigated. The statistics herewith presented are therefore a compilation from the records of the railway companies. Only where no records existed has this office had recourse to the reports of state railway commissioners or to such official documents as are kept in the several states; and in this connection it is proper to say that the records of the companies are found to be more complete, so far as statistics are concerned, than was expected when the investigation was first undertaken.

FIGURES PERTAIN TO OPERATING ROADS.—The figures pertain to operating roads, and not to subsidiary roads. Financial statistics from lessor companies are not given, nor are any facts relating to capitalization or to cost of road and equipment (for a complete statement of which reports from subsidiary roads would be necessary) included in the exhibit. The existence of subsidiary companies, however, may be seen in the influence which they exert on certain statistics of operating companies. Notice, for example, the statistics of mileage owned and mileage operated under contract as shown in Table I for the years 1884, 1885, and 1886, or the statement of interest, rentals, and dividends, as shown in Table VI.

TERRITORIAL DIVISION OF THE COUNTRY.—Statistics are important for the averages which they show, but averages can not safely be used unless the figures from which they are derived refer to conditions which are fairly congruous. This means that an average compiled from the returns of all the roads in the United States can not safely be used. It is on this account that, in presenting these statistics, the country has been divided into ten groups, figures for each of which are given separately. This investigation, therefore, will furnish a basis for ten distinct sets of averages.

In deciding upon the territorial groups two principles have been followed. In the first place, it was decided that figures reported should be transcripts from accounts, and not estimates on a mileage basis. This principle required that boundary lines should conform as nearly as possible to the terminals of operating systems. A few exceptions, however, were allowed, but in the New England group no deviation was found necessary. In the second place, it was decided that roads doing substantially the same kind of business should be grouped together. This principle can, of course, be applied only in the most general way to roads grouped on a territorial basis, but it is expected in addition to territorial grouping to submit the data gathered to other principles of classification than that of territorial assignment. Group I, the statistics of which are given in this bulletin, comprises the New England states; Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut.

CRITICISM AND SUGGESTIONS INVITED.—These bulletins are preliminary to the final publication of the data which they contain. It is of importance that this final presentation should conform to the most approved methods, and be made in a manner to answer as many important questions in railway economy as possible. To attain this end, this office would regard as a favor any criticism or suggestions that those interested in railway statistics may be willing to submit.

PLAN OF THE BULLETIN.

Appended to this bulletin will be found seven tables, containing detailed information on the subjects indicated in their titles.

TABLE I—MILEAGE.—This table shows the length of line (single track) operated, the length of operated line owned by the companies operating, the length of operated line leased by operating companies from subsidiary companies, and the length of line operated under trackage rights.

The length of line (single track) in 1880 was 5,933.76 miles, and in 1889, 6,903.19 miles, showing an increase of mileage for the decade of 969.43 miles, or 16.34 per cent. The increase of mileage, with the percentage increase year by year, is also given, and it is worthy of notice that for each of the years 1883, 1884, 1885, and 1886 the increase is less than 1 per cent. It should be remembered, in making use of the tables, that the length of line to which the statistics of operation are assigned is the length of line operated, and differs from the length of running line by the amount of line operated under trackage rights. This is clearly brought out in the table.

Referring to the operated line owned by operating companies, there appears to have been a decrease during the decade of 536.51 miles, or 11.38 per cent, and it is a significant fact that the highest percentage decrease conforms to the years in which the least new mileage was built. The reverse of this is found in the statement of operated line leased or otherwise controlled by operating companies. The fact that in 1884 there were 274.99 miles less of operated line owned by operating companies than in 1883 is explained by the fact that a large number of companies which in the previous year were independent became during that year subsidiary or lessor companies. From this it appears that, in addition to the statement of new construction during the decade ending 1889, the figures presented reflect the changes in organization of property for the purpose of operation.

A glance at the figures in this table suggests further that the commercial forces which influenced the construction of railways in New England were peculiar for the years 1883, 1884, and 1885, and the tables that follow, which refer to equipment and to operations, show the presence of the same forces for the years named. That the fluctuations here disclosed are intimately connected with the business conditions of the country at large may be seen by comparing the tables contained herein with the following statement pertaining to commercial failures. This statement gives the number of failures and the extent of the liabilities arising therefrom in the United States and in the New England states for the ten years ending 1889.

FAILURES DURING THE YEARS 1880 TO 1889, INCLUSIVE.

YEARS.	IN THE UNITED STATES.		IN THE NEW ENGLAND STATES.	
	Number.	Liabilities.	Number.	Liabilities.
1880.....	4,735	\$65,762,000	723	\$6,460,117
1881.....	5,582	81,155,932	772	11,071,156
1882.....	6,738	102,060,000	772	13,491,400
1883.....	9,184	172,874,172	1,197	37,861,897
1884.....	10,968	226,343,427	1,375	17,223,831
1885.....	10,037	124,220,321	1,261	12,430,433
1886.....	9,834	114,644,119	1,110	18,259,558
1887.....	9,634	167,560,914	1,144	17,834,419
1888.....	10,679	123,829,973	1,191	13,032,255
1889.....	10,882	148,784,337	1,364	34,343,869

The significant fact is, that while for the years 1881 and 1882 there were in the New England states 1,544 failures, with liabilities amounting to \$24,562,556, in the years 1883 and 1884 there

were 2,572 failures, with liabilities amounting to \$55,085,728. In order to judge properly of the statistics of railways for the decade here considered it must be remembered that the years 1883, 1884, and 1885 were not prosperous years. Especial attention will be drawn to this when considering the statistics of the earnings of railway property.

TABLE II—EQUIPMENT AND STATIONS.—In this table is found an exhibit of the equipment of railways, as shown in the number of locomotives and cars used by the companies and the number of stations on their lines. Locomotives are divided into freight, passenger, and switching locomotives, while a separate statement is made for both passenger and freight cars according to the ordinary classifications. It should be noted that, in the statement of equipment, sleeping cars, parlor and dining cars, and freight cars designed for peculiar service are not included, such equipment being the property of outside companies, for which the railway companies pay on a mileage or per diem basis. The equipment shown in the table is the property of the railroad in its corporate capacity. It should be further noted that, owing to the prevalent custom of exchanging cars adopted by railways in order to avoid unloading and loading at the terminus of each line, final judgment on the data here presented should not be passed until corresponding facts are obtained for the entire railway system, of which the New England railways form a part.

TABLE III—EMPLOYÉS.—This table shows, in addition to the total number of employés, the number whose employment had to do with the maintenance of way and structures, maintenance of equipment, conducting transportation, and the general administration.

The important question suggested by the facts contained in this table pertains to the economy and efficiency of railway employment. For the purpose of throwing light on this question the following summaries are inserted:

ASSIGNMENT OF EQUIPMENT TO LENGTH OF LINE OPERATED, AND AMOUNT OF TRAFFIC CARRIED
FOR TEN YEARS, 1880 TO 1889, INCLUSIVE.

ASSIGNMENTS.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	For all roads in the United States for 1889.
Engines per 100 miles of line	28	28	28	29	30	31	31	32	32	33	19
Freight engines per 100 miles of line.	12	12	12	12	12	12	13	12	12	12	10
Passenger engines per 100 miles of line.	13	13	13	13	14	14	15	15	15	15	5
Cars in freight service per 100 miles of line.	601	632	651	686	679	696	713	714	741	752	557
Cars in passenger service per 100 miles of line.	45	46	47	49	51	51	52	53	56	58	17
Tons freight carried per freight engine.	36,480	40,081	39,704	39,420	38,327	37,919	40,879	43,084	44,080	44,397	35,643
Ton miles per freight engine	2,146,219	2,248,435	2,325,162	2,347,987	2,331,411	2,328,009	2,487,638	2,676,321	2,829,492	2,928,255	4,538,786
Passengers carried per passenger engine.	70,002	73,878	82,778	85,906	86,480	86,853	91,371	94,123	98,328	102,758	58,444
Passenger miles per passenger engine.	1,181,716	1,258,802	1,405,981	1,410,243	1,409,744	1,384,446	1,444,325	1,491,290	1,507,419	1,545,409	1,430,105
Freight cars per 1,000,000 tons freight carried.	1,418	1,336	1,386	1,412	1,417	1,474	1,383	1,359	1,376	1,370	1,583
Passenger cars per 1,000,000 passengers carried.	49	47	43	42	42	41	39	37	37	36	54

This summary suggests two points of interest. In the first place, when the data it presents are placed in contrast with corresponding data for the entire country the difference between railway transportation in New England and other parts of the United States is brought clearly to light. The last column in the above summary gives the facts in question for all the roads in the United States for the year 1889. By comparing these figures with those pertaining to New England railways for the same year the greater density of traffic for the New England district becomes at once apparent. For example, the number of passenger engines per 100 miles of line, which in New England is 16, is for the United States at large 5, while the number of passengers carried per passenger engine is for New England 102,758, and for the United States 58,444. Passenger mileage per engine, on the other hand, is about the same for both sections considered,

which shows that the average journey in New England is relatively short. The contrast is as striking if we consider freight traffic. The number of freight engines per 100 miles of line is about the same in both sections, being 12 in the New England states, as against 10 in the entire country. The number of tons carried per freight engine is slightly greater in New England than in the United States, being 44,397 in the former section and 35,643 in the latter; but the ton mileage per freight engine is markedly less in New England than in the country at large, being 2,928,255 in the former and 4,538,786 in the latter. This indicates that short-haul freight traffic is relatively a much more important factor for New England than for other railways.

It will be further noticed that the traffic of New England, both passenger and freight, is done with a smaller number of cars than the traffic of the rest of the country, as shown by the number of passenger and freight cars required to move one million passengers and one million tons of freight. In general, this comparison indicates that the railways of New England are operated under conditions that permit greater economy than the average railway in the United States.

The second point of importance suggested by the preceding summary pertains to changes that have taken place from year to year in the relation of equipment to work done in the New England states. These changes show that economy in administration has gone hand in hand with increase of business. For example, in 1880 it required 49 passenger cars to carry one million passengers, while 36 passenger cars were, in 1889, adequate to perform the same service. In 1880 it required 1,418 freight cars to carry one million tons of freight, while 1,370 freight cars were, in 1889, found adequate to perform the same service. The other figures in the summary point to the same conclusion; increased business permits increased economy.

The economy in labor used in carrying on railway transportation would be naturally in the same direction as economy of locomotives and cars, and it is the purpose of the following summaries to show to what extent economy in labor has proceeded. The first of these summaries presents employés per one hundred miles of line operated during the ten years covered by the bulletin, and the second shows the efficiency of those railway employés engaged directly in conducting transportation, in the moving of freight and passenger traffic.

SUMMARY SHOWING NUMBER OF EMPLOYÉS PER ONE HUNDRED MILES OF LINE OPERATED, FOR THE TEN YEARS, 1880 TO 1889, INCLUSIVE.

CLASSIFICATION.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.
Total.....	559	593	620	654	664	645	618	692	768	761
Maintenance of way and structures.....	105	174	182	191	191	183	186	198	214	220
Maintenance of equipment.....	93	98	104	111	111	107	106	114	125	121
Conducting transportation.....	282	301	313	330	340	335	336	360	394	398
General administration.....	19	20	21	22	22	20	20	20	25	22

SUMMARY SHOWING AMOUNT OF TRAFFIC FOR WHICH EMPLOYMENT OF ONE MAN ASSIGNED TO "CONDUCTING TRANSPORTATION" IS NECESSARY.

NATURE OF TRAFFIC.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.
Tons of freight carried.....	1,502	1,572	1,501	1,473	1,400	1,400	1,534	1,461	1,367	1,380
Tons of freight carried one mile.....	88,234	88,320	87,893	87,738	85,686	86,447	93,332	90,709	87,668	90,901
Passengers carried.....	3,250	3,245	3,458	3,450	3,540	3,706	3,974	3,964	3,820	4,029
Passengers carried one mile.....	54,863	53,291	58,734	57,548	57,741	59,048	62,809	62,760	58,559	60,583

By referring to the first of the two summaries it appears that the number of railway employés in New England has increased from 559 to 761 per one hundred miles of line, an increase of 36 per cent; or, confining the comparison to those employés engaged in conducting transportation, it may be learned that in 1880 there were 282 per one hundred miles of line, as against 398 in 1889, an increase of 41 per cent. Reference to Table IV permits the statement that the general volume of traffic has increased from 50 to 60 per cent. Thus, while there has been an economy in labor, it has not been as marked as that resulting from mechanical and administrative

development. The narrow limit to which this economy of labor is confined is better shown by the second summary. In the case of tons of freight carried there appears to have been an absolute loss of efficiency, since in 1880 one person of the class named effected the transfer of 1,502 tons of freight, as against 1,380 tons in 1889, while the increase in ton mileage per employé of the class named is slightly over 3 per cent. A comparison of figures pertaining to passenger traffic is a little more encouraging.

It is interesting to notice that New England railways employ a larger number of men per mile of line than other railways in the United States; thus, the number of employés in 1889 on New England railways was 761 per one hundred miles of line, while on the railways of the United States at large there were 459 men employed per one hundred miles of line.

TABLE IV—BUSINESS DONE.—This table shows the business done by railways making report, giving the number of tons of freight moved, the tons of freight moved one mile, the number of passengers carried, the number of passengers carried one mile, freight-train mileage, passenger-train mileage, and all other mileage. These items were selected as indicating more perfectly the fluctuation in the business of railway transportation during the ten years covered by the report.

The increase in business done during the decade is seen by comparing the tons of freight moved and the number of passengers carried in 1880, with corresponding figures for 1889. This comparison shows that the tons of freight moved have increased 47.04 per cent, while the number of passengers carried has increased 97.95 per cent. This increase in business done by railways is in part explained by the fact that population has increased, but since the increase in population has been but 17.21 per cent during the decade, it follows that a considerable portion of the increased business is due to the greater relative use made of railway facilities in 1889 than in 1880.

The nature of this increased use of railway facilities is shown in several ways. In the first place it appears from the fact that the passenger traffic has increased at a much more rapid rate than the freight traffic. This is quite natural with people who, like those of the New England states, are devoting a continually increasing share of their activity to manufacturing pursuits. In the second place, the figures exhibit an increase in the long-haul freight traffic and in the short-haul passenger traffic. Thus, while the number of tons moved has increased 47.04 per cent, the number of tons moved one mile has increased 65.90 per cent; and while the number of passengers carried has increased 97.95 per cent, the number of passengers carried one mile has only increased 77.91 per cent. These figures indicate a movement of population toward the great centers. Suburban passenger traffic has certainly increased during the decade covered by the table.

There is further foreshadowed in this table certain changes in the economy of administration which are more clearly indicated in subsequent tables. Thus, to provide for 65.90 per cent increase in tons of freight moved one mile, it was not found necessary to increase freight train mileage more than 16.48 per cent; and to provide for 77.91 per cent increase in the number of passengers carried one mile, passenger-train mileage was increased but 59.39 per cent. In these figures is exposed the economy that is sure to arise in railway management with every increase in traffic; but there is one fact which indicates that this economy is not quite as great as the decrease quoted would seem to imply. The increased size and weight of freight trains, for example, which appears from the fact that freight-train mileage has not increased at a rate commensurate with freight movement, has caused what would otherwise be an abnormal increase in "All other mileage," which, as shown in the table, is 167.98 per cent. The greater part of what is here returned as all other mileage is switching mileage, from which it appears that economy in the service of freight engines necessitates an increased use of switching engines. That this interpretation is correct may be seen by referring to Table II, from which it appears that while freight engines have increased from 677 in the year 1880 to 808 in the year 1889, switching engines have increased from 175 to 324. The percentages used in this comparison are not quite accurate, since the mileage for which no report of business done was received is greater for 1889 than for 1880. By referring to the table the exact number of miles not covered by reports is found. This is true of all tables in the bulletin with the exception of Table I.

TABLE V—EARNINGS AND INCOME.—This table exhibits the earnings and income of operating railways, classified as earnings from freight traffic, earnings from passenger traffic, and income from fixed investments and other sources; it also shows the per cent of operating expenses to earnings from operation.

Under "Earnings from freight service," as used in this table, it is intended to include all earnings incident upon freight service. The figures submitted, therefore, cover earnings from stock yards, elevators, etc. Under "Earnings from passenger service" are included, in addition to the amount paid by the public for passenger traffic, the amounts received by railways for transportation of express, mail, and extra baggage. Under "Income from all other sources" it is intended to include only such income as is derived from permanent investments, the property of railway companies in their corporate capacity. In some few instances this classification has not been strictly followed, but deviations from it are not sufficient to vitiate the accuracy of the table.

The table also shows the movements from year to year in earnings and income, stated by amounts and by percentages. Either statement, however, leaves an erroneous impression so far as the year 1889 is concerned, because for that year the mileage for which receipts are not reported is greater than in any previous year. To avoid the erroneous conclusion arising from this fact, as also to present the data in a form that may be more clearly apprehended, earnings from freight and passenger service in the following summary are assigned to the length of operated mileage on which such earnings accrue.

EARNINGS FROM FREIGHT AND PASSENGER SERVICE ASSIGNED TO MILEAGE OF OPERATED LINE.

EARNINGS.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.
From freight service per mile of line.	\$4,376.05	\$4,452.46	\$4,627.20	\$4,888.26	\$4,579.39	\$4,437.01	\$4,846.54	\$5,021.44	\$5,177.59	\$5,218.17
From passenger service per mile of line.	3,652.38	3,862.80	4,189.13	4,346.52	4,365.86	4,290.87	4,563.03	4,791.90	5,020.75	5,137.81
Gross earnings from operation per mile of line.	8,139.87	8,431.45	8,894.85	9,303.92	9,028.86	8,800.87	9,401.86	9,877.03	10,265.97	10,401.23

From this summary it appears that there has been an increase in the earnings from freight service per mile of line from \$4,376.05 in 1880 to \$5,218.17 in 1889, or a total increase of \$842.12 per mile of line, which is equivalent to an increase of 19 per cent. The earnings from passenger service per mile of line in 1880 were \$3,652.38, as against \$5,137.81 in 1889. In this case the total increase in earnings has been \$1,485.43 per mile of line, or 41 per cent. If the tons of freight moved one mile and passengers carried one mile, as given in Table IV, be assigned to a mileage basis, it will be observed that in 1880 the number of tons of freight moved one mile per mile of line was 248,821, as against 362,022 in 1889, an increase of 45.49 per cent. In 1880 the number of passengers carried one mile per mile of line is found to be 154,711, as against 241,117 in 1889. This shows an increase of 55.85 per cent. Comparing these figures with those presented in the foregoing summary, it is observed that the increase in work done has been at a more rapid rate than the receipts from work done. There is here disclosed a reduction in the payments made by the public for service rendered. To show the extent of that reduction the following calculation has been made, which states the receipts per ton per mile and the receipts per passenger per mile for each year in the decade covered by the bulletin. The amounts given in Table V as earnings from passenger service have been reduced by 11 per cent before calculating the receipts per passenger per mile. This was done because the amounts as given in the table include earnings from express and mail. These earnings for the New England states are estimated at 11 per cent of total earnings from passenger service,

RECEIPTS PER MILE FROM FREIGHT AND PASSENGERS.

YEARS.	Receipts per mile per ton moved.	Receipts per mile per pas- senger carried.
	<i>Cents.</i>	<i>Cents.</i>
1880.....	1.842	2.188
1881.....	1.722	2.116
1882.....	1.728	2.076
1883.....	1.728	2.079
1884.....	1.647	2.016
1885.....	1.576	1.966
1886.....	1.569	1.960
1887.....	1.587	1.930
1888.....	1.527	1.956
1889.....	1.470	1.920

From the above table it appears that the public has shared, by means of reduced passenger and freight rates, in the saving which resulted from increased economy in railway administration. Compared with corresponding data for the railways of the entire country in 1889, it appears that the New England railways carry passengers cheaper and freight dearer than the average rate on all railways. Thus, for the country at large in 1889 the receipts per passenger per mile were 2.165 cents, while the receipts per ton per mile were 0.922 cents.

TABLE VI—EXPENDITURES.—This table shows the total expenditures incurred by operating companies, and classifies the same as operating expenses, interest on funded debt, rentals, taxes, and dividends. It also gives a statement of the surpluses and deficits, as reported by operating companies.

TABLE VII—OPERATING EXPENSES.—In this table will be found an analysis of operating expenses in the four classes: maintenance of way and structures, maintenance of equipment, conducting transportation, and general expenses. In many cases the reports of operating expenses made by companies to the Census Office were classified under five headings, but in every instance these expenses have been reclassified from the books of the company so as to conform to the classification above indicated. It is especially interesting to notice how the fluctuations in the amount of business done have affected fluctuations in operating expenses.

The facts presented in Table VI, taken in connection with earnings and income as presented in Table V, permit the drawing of an income account for each of the years covered. The final result of such an account is shown in Table VI in the surplus and deficit for each year. It requires but a glance at these figures to observe that the years 1883, 1884, and 1885 were unfortunate years in the business of transportation by rail. Thus, for the years 1883 and 1884 the operations of New England railways resulted in deficits, while for the year 1885 a deficit was only avoided by a marked decrease in operating expenses. This fact of commercial depression is further observed in the low rate of dividends paid in the years 1884 and 1885 as compared with those paid in the years 1881, 1882, and 1883. There appears also a deficit for the year 1888 and a reduced dividend for the year 1889, but the former is probably due to the extraordinary expenditure chargeable to maintenance of way and structures and maintenance of equipment, as shown in Table VII, and the latter is accounted for by the marked increase in rentals paid during the year named.

The effect of the unfortunate state of business in 1883 and 1884 shows itself in two ways. In the first place, by referring to Table VII, which presents an analysis of operating expenses, it is observed that the decreased business on railways led to a decrease in the appropriations made for maintenance of way and structures and maintenance of equipment. In the years 1884 and 1885 there was an absolute decrease in the amount of money assigned to these purposes. It is manifest, however, from the nature of the case, that railways can not afford to allow their structure and equipment to deteriorate, and it is not surprising to observe that with the recovery of better times in the years 1886, 1887, and 1888 the appropriations for these purposes were increased. The effect of the decreased business occasioned by the bad times of 1883 is, in the second place, seen in the consolidation of weaker with stronger lines. By referring to Table VI, it will be

observed that while dividends paid in 1889 are 13.21 per cent less than those paid in 1880, rentals for 1889 are 217.11 per cent greater than those for 1880, or, reduced to a mileage basis, dividends per mile of operated line have decreased 21.83 per cent, while rentals have increased 185.62 per cent. This is easily understood when it is noticed that the statistics here given are taken from the records of operating companies. The great increase in rentals is due to the fact that lines which originally were operating companies and paid dividends directly to stockholders are now subsidiary corporations and receive moneys from operating companies in the form of rentals, which in turn are paid as dividends to their own stockholders. On the books of the operating companies, however, such items would appear as rentals, and not as dividends. If the table is examined, it will be observed that this tendency toward the increase of rentals is clearly traceable to commercial pressure brought to bear upon those who managed railway property. This means that commercial pressure is one cause of railway consolidation.

It is always difficult to obtain a correct average. In order, however, to find what have been the average operations of the New England railways for the ten years ending 1889 the following income sheet has been prepared. It will be noticed that the figures given in this income sheet are the total of the figures given in the table. Thus, gross earnings from operation for the New England railways for the ten years are \$587,200,032.89. In the column headed "Per mile of line," the figures have been reduced so as to provide for comparison with annual income sheets; that is to say, for each item the sum of the actual number of miles operated during each of the ten years, on the basis of which earnings accrued, have been taken as the basis for earnings per mile of line.

INCOME ACCOUNT OF RAILWAYS IN THE NEW ENGLAND STATES COVERING THE OPERATIONS OF THE
TEN YEARS ENDING 1889.

ITEMS.	Amount.	Total.	Per mile of line reduced for comparison with annual earnings.
Gross earnings from operation	\$587,200,032.89		\$9,283.79
Less operating expenses	401,403,442.99		6,346.30
Income from operation		\$185,796,589.90	2,937.49
Income from other sources		15,434,653.70	244.03
Total income		201,231,243.60	3,181.52
Deductions from income :			
Interest on funded debt	56,071,647.46		886.51
Rentals	39,759,760.18		628.61
Taxes	23,742,519.62		375.38
Miscellaneous	2,735,040.06		43.24
Total deductions from income		122,308,967.22	1,933.74
Final net income		78,922,276.38	1,247.78
Dividends		73,432,146.03	1,160.98
Surplus from operations for the ten years ending 1889.		5,490,130.35	86.80

From a public point of view no question is of more importance than the valuation of railway property. There are several rules for arriving at such valuation, one of which is to capitalize at an assumed rate of interest the earnings of railway capital. Adopting this rule for the New England railways, it would be difficult to find more satisfactory data for the calculation than that submitted in the income account given above, since the earnings and expenses per mile of line which it exhibits are a true average based on ten years of actual operations. The amount of

earnings on railway capital is of course equal to the amount of interest, rentals, and dividends paid as these items appear on the books of operating roads. For the ten years ending 1889 these payments amount to \$169,263,553.67, which, reduced to the basis of twelve months' operations and assigned to mile of line, show that New England railways paid yearly to the owners of railway capital the sum of \$2,676.10 per mile. This sum, capitalized at a rate of 5 per cent, gives \$53,522 as the value of railway property per mile of line. Estimating the average length of line operated for the ten years covered by the bulletin as 6,500 miles, the total value of railway property in New England is \$347,893,000.

It is interesting to compare the items in the above income sheet for New England railways with corresponding items derived from operations of railways of the entire system in the United States. New England railways show \$9,283 gross earnings per mile of line, as against \$6,290 for the railways of the entire country; operating expenses are \$6,346, as against \$4,203; net income is \$2,937, as against \$2,087; income from sources other than operation \$244, as against \$816, from which it appears that New England railways give a total income from all sources of \$3,181 per mile of line, as against \$2,903 for all the railways in the United States. It is a little surprising to notice that corporate investments for roads outside of New England are over three times as much per mile of line as investments of New England railways.

Turning now to deductions from income, it appears that New England railways pay \$886 per mile of line for interest on funded debt, as against \$1,389 on all the railways in the country; taxes are \$375, as against \$175; dividends are \$1,160, as against \$535; while rentals are \$628 for both the New England railways and those of the country at large. The comparison of these figures indicates little in common between the financial condition of New England railways and the railways of the country at large.

Should it be desired to compare the operations of any particular year with the figures as shown in the above income sheet, it can be done so far as income is concerned by referring to earnings from freight and passenger service assigned to mileage of operated line, given as a summary under Table V, or to the following summary, which assigns expenditures to a mileage basis for the ten years:

EXPENDITURES ASSIGNED TO MILE OF OPERATED LINE.

ITEMS.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.
Operating expenses	\$5,311.20	\$5,762.56	\$6,204.35	\$6,545.38	\$6,237.11	\$5,804.00	\$6,230.98	\$6,746.01	\$7,283.40	\$7,154.29
Interest	791.84	795.44	873.49	998.74	1,049.49	890.07	892.44	867.05	846.76	851.36
Rentals	390.85	388.19	442.77	441.09	417.54	658.36	710.95	746.85	907.05	1,116.35
Taxes	272.08	293.74	332.30	351.81	379.09	373.22	376.89	427.04	460.19	466.28
Dividends.....	1,184.07	1,191.04	1,195.92	1,205.55	1,203.06	1,193.52	1,213.81	1,238.59	1,069.30	925.60
Total expenditures, including miscellaneous.	7,993.73	8,484.85	9,087.27	9,584.14	9,328.76	8,967.18	9,460.00	10,068.36	10,592.55	10,575.46

The statistics presented in this bulletin suggest many points of interest not mentioned in the text, but most of these questions are such that one can not safely arrive at conclusions until he has before him corresponding facts for the entire country. Such questions will be considered in the final presentation of the series on the subject of railway statistics.

TABLE I.—MILEAGE.

ANALYSIS OF MILEAGE.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887. (c)	1888. (c)	1889. (c)	DECADE.
LENGTH OF LINE (SINGLE TRACK):											
Total mileage.....	5,033.76	6,059.74	6,275.24	6,275.90	6,331.70	6,362.06	6,417.07	6,571.53	6,641.02	6,803.19	909.43
Increased mileage.....		125.08	155.60	64.56	55.80	30.36	55.61	153.91	69.44	292.17	16.34
Per cent of increase.....		2.12	2.57	0.97	0.89	0.48	0.87	2.40	1.06	3.85	
LINE OPERATED:											
Total mileage.....	6,021.18	6,159.31	6,321.31	6,411.42	6,460.82	6,488.98	6,525.59	6,642.50	6,688.17	6,942.34	921.16
Increased mileage.....		138.13	162.00	90.11	49.40	24.16	35.61	116.91	45.67	254.17	15.20
Per cent of increase.....		2.29	2.63	1.43	0.77	0.45	0.55	1.73	0.69	3.80	
Decreased mileage.....											
Per cent of decrease.....											
OPERATED LINE OWNED BY OPERATING COMPANIES:											
Total mileage.....	4,713.06	4,782.20	4,770.75	4,844.35	4,569.36	4,342.49	4,286.45	4,212.68	4,044.72	4,170.55	596.51
Increased mileage.....		69.14		73.60						131.83	3.20
Per cent of increase.....		1.47		1.54						3.20	
Decreased mileage.....			11.45		274.99	228.87	56.04	73.77	167.96		
Per cent of decrease.....			0.24		5.68	4.96	1.29	1.72	3.99		
OPERATED LINE LEASED, OR OTHERWISE CONTROLLED BY OPERATING COMPANIES:											
Total mileage.....	1,220.70	1,277.54	1,444.59	1,431.55	1,762.34	2,019.57	2,131.22	2,358.90	2,596.30	2,726.64	1,565.94
Increased mileage.....		56.84	167.65		330.79	257.23	111.65	227.68	237.40	130.34	123.37
Per cent of increase.....		4.66	13.68		23.11	14.60	5.53	10.68	10.66	3.02	
Decreased mileage.....				13.04							
Per cent of decrease.....				0.90							
LINE OPERATED UNDER TRACKAGE RIGHTS:											
Total mileage.....	87.42	90.57	105.97	135.52	129.12	127.92	107.92	70.92	47.15	30.15	
Increased mileage.....		12.15	6.40	22.55	6.40						
Per cent of increase.....		13.90	6.43	27.89							
Decreased mileage.....					6.40	1.20	20.60	37.00	23	8.00	48.97
Per cent of decrease.....					4.72	0.93	19.63	34.28	33	16.97	65.22

^a Includes 36.75 miles of road in Canada.

TABLE II.—EQUIPMENT AND STATIONS.

ANALYSIS OF EQUIPMENT AND STATIONS.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887. (a)	1888. (a)	1889. (a)	DECADE.
LOCOMOTIVES	1,616	1,685	1,751	1,845	1,920	1,961	2,012	2,078	2,128	2,151	
Freight	677	706	735	777	793	795	810	802	808	808	
Passenger	764	789	812	848	864	813	939	996	1,013	1,019	
Switching	175	190	204	220	243	253	263	280	307	324	
Increase		69	66	94	75	41	51	66	50	23	655
Per cent of increase		4.27	3.92	5.37	4.07	2.14	2.60	3.28	2.41	1.08	33.11
Decrease											
Per cent of decrease											
CARS IN PASSENGER SERVICE	2,622	2,730	2,896	3,077	3,214	3,276	3,366	3,508	3,704	3,803	
Ordinary	1,987	2,063	2,182	2,345	2,449	2,494	2,549	2,658	2,779	2,951	
Sleeping	10	11	10	14	14	13	13	15	15	15	
Parlor	41	48	61	63	90	99	113	111	124	126	
Dining					2	3	3	3	3	5	
Baggage	401	413	427	441	440	448	459	472	492	465	
Postal	95	101	107	109	105	107	103	110	102	101	
Express	89	95	108	109	100	119	126	139	151	130	
Increase		108	166	181	197	162	90	142	196	99	
Per cent of increase		4.12	6.08	6.25	4.45	1.93	2.75	4.22	5.59	2.67	1,181
Decrease											45.04
Per cent of decrease											
CARS IN FREIGHT SERVICE	35,051	37,744	40,431	43,291	43,079	44,465	45,822	46,950	49,051	49,140	
Box	17,839	18,620	20,059	20,148	20,258	20,063	20,964	21,406	21,964	21,966	
Flat	8,882	8,882	8,982	10,156	9,561	10,488	10,717	10,717	12,025	11,888	
Stock	8,003	8,003	8,074	9,922	1,012	9,979	9,952	9,665	798	744	
Coal	4,607	5,075	6,505	7,765	8,041	9,022	9,136	9,423	10,024	11,422	
Trunk	142	154	147	142	139	133	161	151	105	101	
Refrigerator	7	7	7	7	7	7	4	25	25	26	
Other	3,335	3,703	3,697	4,051	4,061	3,780	3,886	4,663	4,110	2,963	
Increase		2,603	2,687	2,800	2,807	1,385	1,387	1,228	2,101	89	14,080
Per cent of increase		7.68	7.12	6.33	1.82	3.22	3.05	2.46	4.47	0.18	40.20
Decrease											
Per cent of decrease											
CARS IN COMPANY'S SERVICE	216	269	293	339	368	591	616	668	713	700	
Increase		54	24	46	69	153	95	62	45	494	
Per cent of increase		25.12	8.92	15.70	8.55	41.58	18.23	8.44	6.74	290.77	
Decrease											
Per cent of decrease										0.56	
CARS CONTRIBUTED TO FAST FREIGHT SERVICE	2,917	2,901	3,713	3,869	3,628	3,737	3,904	4,318	4,679	5,311	
Increase			812	156	241	109	167	414	361	622	2,394
Per cent of increase			27.90	4.30	6.23	3.00	4.47	10.60	8.30	13.51	82.07
Decrease		16									
Per cent of decrease		0.55									
STATIONS ON LINE	1,849	1,867	1,891	1,879	1,983	2,107	2,119	2,275	2,318	2,283	
Increase		18	24	24	114	114	12	156	43	334	
Per cent of increase		0.97	1.29	1.29	6.07	6.72	0.57	7.36	1.89	23.47	
Decrease											
Per cent of decrease										1.31	

MILEAGE OF OPERATED LINE FOR WHICH NO REPORT OF EQUIPMENT AND STATIONS WAS MADE.

ANALYSIS OF EQUIPMENT AND STATIONS.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887. (a)	1888. (a)	1889. (a)	DECADE.
LOCOMOTIVES	185.91	191.38	111.86	111.86	111.86	101.50	99.00	70.64	70.64	6,410.40	
Freight and cars in passenger, freight and company's service, contributed to fast freight service.	185.91	191.38	111.86	111.86	111.86	101.50	99.00	70.64	70.64	6,410.40	
Stations on line	356.52	367.16	339.70	266.63	224.59	230.03	218.66	124.17	90.03	6,442.79	

a Includes equipment and stations on 36.75 miles of road in Canada.
 b Includes 144.50 miles of line completed in 1889, upon which but little business was done in that year. Statistics for the greater part of the remaining mileage will appear in the final reports.

TABLE III.—EMPLOYÉS.

	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887. (a)	1888. (a)	1889. (c)	DECADE.
ANALYSIS OF EMPLOYÉS.											
Employés:											
Total	32,585	35,313	38,117	41,198	41,986	41,084	41,627	45,501	50,136	49,856	17,401
Increase		2,728	2,804	3,081	788		543	3,874	4,635		17,401
Per cent of increase		8.37	7.94	8.06	1.91		1.32	9.31	10.19		52.17
Decrease						902				1,10	
Per cent of decrease						2.15					
MAINTENANCE OF WAY AND STRUCTURE:											
Total	9,608	10,358	11,171	12,066	12,067	11,689	11,913	12,908	14,158	14,539	4,731
Increase		750	813	895	1		224	1,085	1,160	1,81	4,731
Per cent of increase		7.81	7.85	8.01	0.01		1.92	9.11	8.92	1.38	49.24
Decrease						378					
Per cent of decrease						3.13					
MAINTENANCE OF EQUIPMENT:											
Total	5,451	5,553	6,402	6,985	7,029	6,787	6,837	7,514	8,283	7,904	2,453
Increase		402	549	583	44		50	677	769		2,453
Per cent of increase		7.37	9.38	9.11	0.63		0.74	9.90	10.23		45.00
Decrease						242				379	
Per cent of decrease						3.44				4.38	
CONDUCTING TRANSPORTATION:											
Total	16,440	17,807	19,274	20,785	21,489	21,314	21,582	23,655	26,656	25,927	9,487
Increase		1,367	1,367	1,511	704		268	2,073	2,401		9,487
Per cent of increase		8.92	7.63	7.84	3.30		1.26	9.61	10.15		51.11
Decrease						175				129	
Per cent of decrease						0.81				0.50	
GENERAL ADMINISTRATION:											
Total	1,086	1,195	1,270	1,362	1,401	1,294	1,295	1,334	1,630	1,416	330
Increase		109	75	82	39		1	39	305		330
Per cent of increase		10.04	6.28	7.54	2.86		0.08	3.01	22.86		30.39
Decrease						107				223	
Per cent of decrease						7.64				13.61	

MILEAGE OF OPERATED LINE FOR WHICH NO REPORT OF EMPLOYÉS WAS MADE.

	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.
Mileage	196.65	203.85	176.01	112.99	139.13	118.43	100.14	71.78	71.78	6427.36

^a Includes employés on 36.75 miles of road in Canada.

^b Includes 144.50 miles of line completed in 1889, upon which but little business was done in that year. Statistics for the greater part of the remaining mileage will appear in the final reports.

TABLE IV.—BUSINESS DONE.

ANALYSIS OF BUSINESS DONE.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887. (c)	1888. (c)	1889. (c)	DECADE.
TONS OF FREIGHT MOVED:											
Total.....	24,003,967	27,981,405	28,666,813	30,198,074	22,368,260	29,690,504	32,662,487	33,950,198	35,175,611	35,295,896	11,291,929
Increase.....		3,977,458	684,905	1,629,761	2,971,983	332,244	2,971,983	1,287,711	1,225,413	120,285	47,04
Per cent of increase.....		16.37	2.45	5.34	1.13	1.13	10.01	3.94	3.61	0.34	
Decrease.....					887,814						
Per cent of decrease.....					2.77						
TONS OF FREIGHT MOVED ONE MILE:											
Total.....	1,394,392,082	1,555,916,764	1,662,490,527	1,779,773,954	1,764,878,293	1,794,894,823	1,960,259,133	2,079,601,331	2,243,786,835	2,313,327,712	918,929,624
Increase.....		161,524,676	106,578,683	117,283,427	1,764,878,293	30,016,535	105,364,305	119,242,258	164,285,444	69,534,877	3,10
Per cent of increase.....		11.58	6.89	7.05	1.70	1.70	9.21	6.08	7.90	3.10	66.90
Decrease.....					14,895,661						
Per cent of decrease.....					0.84						
NUMBER OF PASSENGERS CARRIED:											
Total.....	59,221,338	57,993,859	66,305,116	72,075,250	73,736,644	78,428,428	85,066,681	92,617,495	98,819,643	103,374,987	51,153,019
Increase.....		8,772,521	8,311,257	5,770,134	3,631,364	2,671,784	6,638,253	7,550,814	6,202,148	4,354,744	4,01
Per cent of increase.....		14.65	14.33	8.70	5.11	3.53	8.46	8.88	6.70	4.01	97.85
Decrease.....											
Per cent of decrease.....											
NUMBER OF PASSENGERS CARRIED ONE MILE:											
Total.....	872,106,355	978,089,635	1,114,942,918	1,171,911,570	1,223,657,540	1,237,665,083	1,331,667,367	1,452,516,265	1,511,941,198	1,551,590,703	679,484,348
Increase.....		105,983,180	136,853,383	56,968,652	51,746,970	14,051,549	93,974,284	120,848,933	59,424,693	39,049,505	2,02
Per cent of increase.....		12.15	13.99	5.11	4.42	1.13	7.99	9.08	4.09	2.02	77.91
Decrease.....											
Per cent of decrease.....											
FREIGHT-TRAIN MILEAGE:											
Total.....	17,389,678	17,242,649	17,374,138	18,576,011	17,643,028	17,494,879	18,159,279	18,634,137	19,609,412	20,254,910	2,866,292
Increase.....			131,189	1,201,873	6,32		664,400	474,558	975,275	645,498	16,48
Per cent of increase.....			0.76	6.92	0.02		3.80	2.61	5.23	3.29	
Decrease.....						148,149					
Per cent of decrease.....						0.84					
PASSENGER-TRAIN MILEAGE:											
Total.....	16,157,142	17,495,374	18,823,094	19,988,728	20,092,081	21,119,500	22,100,165	23,292,820	25,392,912	25,752,951	9,565,809
Increase.....		1,308,232	1,338,230	1,135,034	733,353	427,419	980,665	1,192,655	2,100,082	360,039	59,39
Per cent of increase.....		8.28	7.59	6.03	3.67	2.07	4.64	5.40	9.02	1.42	
Decrease.....											
Per cent of decrease.....											
ALL OTHER MILEAGE:											
Total.....	3,820,189	4,562,489	5,069,095	6,477,248	7,440,681	7,492,622	8,167,466	9,299,615	9,878,813	10,237,163	6,416,974
Increase.....		742,250	506,656	1,408,153	963,433		764,814	1,117,149	569,228	358,320	3,63
Per cent of increase.....		19.43	11.10	27.78	14.87		10.29	13.57	6.11	3.63	
Decrease.....											
Per cent of decrease.....											

MILEAGE OF OPERATED LINE FOR WHICH NO REPORT OF BUSINESS DONE WAS MADE.

353.00	246.42	217.87	199.57	331.07	202.01	187.85	185.63	186.49	186.49	186.07	
416.79	307.12	278.57	294.37	402.77	291.71	271.55	271.03	192.39	192.39	192.39	6,561.97
323.31	221.84	195.95	180.15	267.49	142.33	115.07	152.85	123.31	123.31	123.31	6,496.22
384.01	282.54	255.65	240.85	227.49	232.36	215.77	213.53	134.91	134.91	134.91	6,507.82
309.59	298.12	162.23	166.43	166.43	169.37	185.71	171.33	135.49	135.49	135.49	6,481.07
295.31	193.84	167.59	152.45	152.45	157.59	173.93	159.55	116.71	116.71	116.71	6,485.62
153.71	158.21	139.66	113.86	113.86	119.30	102.14	99.92	73.78	73.78	73.78	6,429.36

a Includes business done on 36.75 miles of road in Canada.
 b Includes 144.50 miles of line completed in 1889 upon which but little business was done in that year. Statistics for the greater part of the remaining mileage will appear in the final reports.

TABLE V.—EARNINGS AND INCOME.

ANALYSIS OF EARNINGS AND INCOME.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887. (c)	1888. (a)	1889. (c)	DECADE.
EARNINGS FROM FREIGHT SERVICE:											
Total.....	\$25,683,014.10	\$26,739,341.88	\$29,730,272.41	\$30,754,757.43	\$29,074,560.79	\$28,283,052.23	\$31,148,743.64	\$33,000,887.61	\$34,265,279.68	\$34,001,508.19	\$8,318,554.09
Increase.....	1,116,327.78	1,330,350.53	1,330,350.53	2,024,652.02	344,462.21	791,508.66	2,865,697.31	1,852,144.07	1,264,392.07	250,619.11	32.89
Per cent of increase.....	4.35	7.05	7.21	7.05	1.26	2.72	10.13	5.55	3.83	0.77	
Decrease.....											
Per cent of decrease.....											
EARNINGS FROM PASSENGER SERVICE:											
Total.....	21,435,800.50	22,250,133.38	25,010,201.20	27,374,305.54	27,718,897.75	27,345,723.05	29,326,690.21	31,492,377.33	33,227,346.27	33,477,965.38	12,042,134.79
Increase.....	1,814,332.70	1,814,332.70	2,760,107.01	1,364,674.25	344,462.21	373,104.70	1,980,807.16	2,165,787.12	1,734,968.94	250,619.11	56.18
Per cent of increase.....	8.46	8.46	11.87	5.24	1.26	1.35	7.24	7.39	5.51	0.75	
Decrease.....											
Per cent of decrease.....											
GROSS EARNINGS FROM OPERATION:											
Total.....	47,772,901.30	50,748,921.92	55,223,148.28	58,596,100.82	57,324,253.78	56,087,921.77	60,811,354.43	64,915,772.82	67,940,213.43	67,774,444.25	20,001,542.86
Increase.....	3,076,020.53	3,076,020.53	4,479,236.36	3,367,952.54	1,271,847.04	1,296,332.01	4,723,432.66	4,104,418.98	3,024,440.61	165,769.18	41.87
Per cent of increase.....	6.22	6.22	8.83	6.10	2.17	2.16	8.42	6.75	4.66	0.24	
Decrease.....											
Per cent of decrease.....											
INCOME FROM ALL OTHER SOURCES:											
Total.....	1,228,818.15	1,332,427.26	1,552,559.00	1,485,152.33	1,296,884.45	1,572,436.74	1,588,565.78	1,908,987.76	1,768,911.29	1,700,610.34	471,762.19
Increase.....	103,609.11	103,609.11	220,132.34	3,367,952.54	188,267.88	276,552.93	16,129.04	319,731.98	139,376.47	68,340.95	38.39
Per cent of increase.....	8.43	8.43	16.52	22.68	14.51	21.25	1.03	20.13	7.30	3.86	
Decrease.....											
Per cent of decrease.....											
TOTAL EARNINGS AND INCOME:											
Total.....	49,001,719.64	52,081,349.18	56,780,707.88	60,081,253.15	58,621,138.23	57,660,358.51	62,399,920.21	66,824,060.58	69,709,124.72	69,475,054.59	20,473,335.05
Increase.....	3,079,629.64	3,079,629.64	4,699,358.70	3,300,545.27	1,460,114.92	1,568,889.75	4,739,561.70	4,424,140.37	2,885,064.14	234,070.13	41.78
Per cent of increase.....	6.28	6.28	9.02	5.81	2.43	2.43	8.22	7.00	4.32	0.34	
Decrease.....											
Per cent of decrease.....											
PER CENT OF OPERATING EXPENSES											
TO EARNINGS:											
Per cent.....	65.25	68.35	69.75	70.37	69.08	65.95	65.85	68.30	70.95	68.78	3.53
Increase.....	3.10	3.10	1.40	0.52	1.29	3.13	0.10	2.45	2.65	2.17	
Decrease.....											
Mileage.....	151.71	140.41	111.85	112.99	111.86	117.30	99.00	70.64	70.64	6426.22	

MILEAGE OF OPERATED LINE FOR WHICH NO REPORT OF EARNINGS WAS MADE.

a Includes earnings and income on 36.75 miles of road in Canada.

b Includes 144.50 miles of line completed in 1883, upon which but little business was done in that year. Statistics for the greater part of the remaining mileage will appear in the final reports.

TABLE VI.—EXPENDITURES.

ANALYSIS OF EXPENDITURES.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887. (c)	1888. (c)	1889. (c)	DECADE.
OPERATING EXPENSES:											
Total	\$31,171,412.51	\$34,684,850.91	\$38,522,812.53	\$41,235,908.08	\$39,590,439.84	\$39,988,886.08	\$40,046,490.26	\$44,334,795.76	\$48,201,516.23	\$46,617,330.19	\$15,445,917.68
Increase		3,513,438.40	3,837,961.62	2,713,065.55	1,633,468.24	2,010,553.16	3,057,003.58	4,288,305.50	3,866,720.47	1,584,186.04	49.55
Decrease		11.27	11.07	7.04	3.97	0.59	8.27	10.71	8.72	3.29	
Per cent of increase		11.27	11.07	7.04	3.97	0.59	8.27	10.71	8.72	3.29	
Per cent of decrease											
INTEREST ON FUNDED DEBT:											
Total	4,647,292.88	4,787,768.08	5,423,501.55	6,202,080.20	6,663,200.68	5,672,447.43	5,735,728.89	5,698,298.58	5,003,877.55	5,547,451.93	900,153.05
Increase		140,465.80	635,742.87	808,578.74	371,129.39	990,762.25	63,281.46	37,430.31	94,421.03	56,435.62	19.37
Decrease		3.02	13.28	16.02	5.90	14.87	1.12	0.65	1.66	1.01	
Per cent of increase		3.02	13.28	16.02	5.90	14.87	1.12	0.65	1.66	1.01	
Per cent of decrease											
RENTALS:											
Total	2,293,906.23	2,336,523.09	2,749,185.54	2,778,849.69	2,650,962.33	4,193,734.83	4,569,276.95	4,908,314.64	6,002,848.78	7,274,128.10	4,980,221.87
Increase		42,616.86	412,692.45	29,694.15	130,460.48	1,944,742.50	43,753.13	339,037.69	1,094,534.14	1,271,279.32	217.11
Decrease		1.86	17.66	1.08	8.59	58.27	8.90	7.42	22.30	21.18	
Per cent of increase		1.86	17.66	1.08	8.59	58.27	8.90	7.42	22.30	21.18	
Per cent of decrease											
TAXES:											
Total	1,596,866.12	1,768,022.13	2,063,240.26	2,216,405.00	2,406,865.48	2,878,503.23	2,422,255.36	2,806,533.01	3,045,551.07	3,036,278.84	1,441,412.72
Increase		171,156.03	295,218.11	163,164.74	130,460.48	2,878,503.23	43,753.13	384,277.69	239,018.06	7,272.22	30.27
Decrease		10.72	16.70	7.42	8.59	28,363.25	1.84	18.86	8.92	0.24	
Per cent of increase		10.72	16.70	7.42	8.59	28,363.25	1.84	18.86	8.92	0.24	
Per cent of decrease											
DRYDINGS:											
Total	6,949,322.70	7,168,850.36	7,435,458.17	7,564,966.50	7,638,237.10	7,606,288.69	7,801,158.97	8,140,009.43	7,076,631.10	6,031,222.71	
Increase		219,527.66	296,607.81	169,508.33	43,270.60	7,606,288.69	194,869.68	838,830.46	1,063,378.33	1,045,408.39	918,069.39
Decrease		3.10	3.58	2.28	0.57	31,948.11	2.86	4.84	13.06	14.77	13.21
Per cent of increase		3.10	3.58	2.28	0.57	31,948.11	2.86	4.84	13.06	14.77	
Per cent of decrease											
TOTAL EXPENDITURES, INCLUDING MISCELLANEOUS:											
Total	46,915,221.69	51,070,353.25	56,422,831.70	60,380,686.89	59,228,313.65	57,147,850.33	60,789,448.29	66,162,286.27	70,101,508.07	68,909,680.90	21,994,459.21
Increase		4,155,106.56	5,352,503.45	3,957,255.19	3,432,700.60	2,089,403.12	3,054,897.76	5,309,857.08	3,892,221.89	1,191,827.17	46.88
Decrease		8.86	10.48	7.01	1,151,733.24	1,151,733.24	6.39	8.83	5.94	1.70	
Per cent of increase		8.86	10.48	7.01	1,151,733.24	1,151,733.24	6.39	8.83	5.94	1.70	
Per cent of decrease											
Surplus	2,086,497.85	1,011,020.93	357,876.18	288,833.74	607,175.42	512,507.98	1,000,471.92	654,774.31	302,383.95	505,373.69	
Deficit											

MILEAGE OF OPERATED LINE FOR WHICH NO REPORT OF EXPENDITURES WAS MADE.

Mileage	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.
	151.71	140.41	111.86	111.86	111.86	117.30	49.00	70.64	70.64	6426.22

a Includes expenditures on 36.75 miles of road in Canada.
 b Includes 144.50 miles of line completed in 1883, upon which but little business was done in that year. Statistics for the greater part of the remaining mileage will appear in the final reports.

TABLE VII.—OPERATING EXPENSES.

	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887. (a)	1888. (c)	1889. (c)	DECADE.
ANALYSIS OF OPERATING EXPENSES.											
MAINTENANCE OF WAY AND STRUCTURE:											
Total.....	\$7,922,928.95	\$9,191,077.11	\$9,888,465.24	\$10,483,375.83	\$9,755,891.83	\$9,063,618.72	\$10,024,904.89	\$10,792,902.80	\$11,904,055.10	\$10,800,081.44	\$72,887,052.49
Increase.....	1,268,148.16	697,368.13	697,368.13	594,910.59	727,484.00	692,273.11	961,376.17	767,908.00	1,111,182.21	1,094,073.66	86.44
Per cent of increase.....	16.01	7.59	7.59	6.02	6.94	7.10	10.61	7.68	10.30	9.19	
Decrease.....											
Per cent of decrease.....											
MAINTENANCE OF EQUIPMENT:											
Total.....	5,360,856.81	6,132,682.18	7,093,211.06	7,500,420.35	6,958,568.96	6,335,029.11	7,152,349.48	7,710,024.91	8,567,932.01	7,702,557.10	2,342,200.29
Increase.....		772,825.37	900,528.88	467,209.29	541,891.39	623,589.88	811,220.37	557,675.43	837,907.10	865,374.91	43.69
Per cent of increase.....		14.41	13.68	6.64	7.22	8.96	12.90	7.80	11.13	10.10	
Decrease.....											
Per cent of decrease.....											
CONDUCTING TRANSPORTATION:											
Total.....	15,373,826.57	16,546,239.42	18,440,527.07	19,812,108.92	19,466,603.13	18,429,369.63	19,424,410.92	22,374,731.85	24,245,323.90	24,498,201.51	9,124,474.24
Increase.....	1,172,412.85	1,864,287.65	1,864,287.65	1,371,581.85	345,035.79	1,637,233.50	995,041.26	2,360,330.93	1,870,692.05	252,967.61	39.55
Per cent of increase.....	7.63	11.45	11.45	7.44	1.74	3.33	5.40	10.19	8.36	1.04	
Decrease.....											
Per cent of decrease.....											
GENERAL EXPENSES:											
Total.....	2,514,300.18	2,814,852.29	3,107,009.16	3,440,002.98	3,418,375.92	3,160,869.22	3,444,734.97	3,457,126.11	3,484,195.22	3,006,400.14	1,092,189.96
Increase.....		300,552.02	345,156.96	279,393.82	21,627.06	257,506.70	283,805.75	12,401.14	27,050.11	122,244.92	43.44
Per cent of increase.....		11.95	12.28	8.84	0.83	7.33	8.98	0.36	0.78	3.51	
Decrease.....											
Per cent of decrease.....											
TOTAL OPERATING EXPENSES:											
Total.....	31,171,412.51	34,684,859.91	38,822,812.33	41,255,908.08	39,590,492.84	36,958,856.05	40,049,400.26	44,234,758.76	48,201,516.23	46,611,290.19	15,445,917.68
Increase.....		3,513,448.40	3,837,691.62	2,713,692.55	1,626,468.24	2,619,553.15	3,651,692.58	4,288,265.59	3,866,720.47	3,806,720.47	49.55
Per cent of increase.....		11.27	11.07	7.04	3.97	6.59	8.27	16.71	8.72	8.16	
Decrease.....											
Per cent of decrease.....											

MILEAGE OF OPERATED LINE FOR WHICH NO REPORT OF OPERATING EXPENSES WAS MADE.

Mileage.....	154.71	146.41	89.56	111.85	111.50	117.54	10.00	76.64	70.64	549.22	
--------------	--------	--------	-------	--------	--------	--------	-------	-------	-------	--------	--

^a Includes operating expenses on 29.75 miles of road in Canada.

^b Includes 144.59 miles of line completed in 1880, upon which but little business was done in that year. Statistics for the greater part of the remaining mileage will appear in the final reports.



[7-010]

CENSUS BULLETIN.

No. 47.

WASHINGTON, D. C.

March 28, 1891.

DISTRIBUTION OF POPULATION BY DRAINAGE BASINS.

DEPARTMENT OF THE INTERIOR,

CENSUS OFFICE,

WASHINGTON, D. C., March 23, 1891.

The distribution of the population of the United States in 1890, 1880, and 1870 by drainage basins is given in the present bulletin, furnished by Mr. HENRY GANNETT, Geographer, special agent of the Census Office.

A condensation of the elaborate table furnished by Mr. GANNETT, showing the percentage of the total population of the principal drainage basins of the country as it existed in the three decades mentioned, is herewith presented :

PERCENTAGE OF TOTAL POPULATION.

DIVISIONS.	1890.	1880.	1870.
Atlantic Ocean	96.2	97.1	97.8
New England coast	7.2	7.6	8.5
Middle Atlantic coast	18.3	19.2	20.8
South Atlantic coast	6.8	7.4	7.3
Great Lakes.....	11.2	10.7	11.0
Gulf of Mexico.....	52.7	52.2	50.2
Great Basin	0.4	0.4	0.3
Pacific Ocean.....	3.4	2.5	1.9

Of the percentages given in the above table for the drainage basin of the Gulf of Mexico, the tertiary division of the Mississippi river embraces 43.8 for 1890, 43.4 for 1880, and 42.4 for 1870.

The areas of the respective drainage basins were determined with care, and adjusted to suit the total area of the United States exclusive of Alaska.

Superintendent of Census.

DISTRIBUTION OF POPULATION BY DRAINAGE BASINS.

BY HENRY GANNETT.

In the table appended is given, first, the approximate area of each drainage basin in square miles, and, secondly, the population of each such drainage basin in 1890, 1880, and 1870, together with the number of inhabitants to the square mile.

The drainage areas are classified primarily by the two oceans and the Great Basin; second, by sections of the coast; third, by the principal rivers, the rivers of each section of the coast being arranged under that section, and the branches of a river placed under the main river.

The primary divisions are set at the margin of the page. Under each primary division its secondary divisions are placed, being indented one space. Under each of these secondary divisions the tertiary divisions are placed, and so on, the subdivisions of a drainage basin being in every case indented within that of the stream comprising them.

The New England coast comprises the area and population of the basins of the several rivers given beneath it, and, in addition to these, the area and population of the minor streams and of the immediate coast from the eastern border of Maine to the Hudson river.

The Middle Atlantic coast comprises, besides the basin of the rivers under it, in like manner the basins of the minor streams and of the coast itself as far as the mouth of the Potomac, including that stream.

The South Atlantic coast, in like manner, comprises the country from the Potomac southward to Florida.

The Gulf of Mexico, commencing with the peninsula of Florida, embraces the coast and the whole Mississippi valley to the mouth of the Rio Grande, including the latter stream.

The population of the various subdivisions was obtained by using the county as a unit, and subdividing the counties into tenths in cases where they lie partly in one basin and partly in another. Of course, in making these divisions of counties, population, and not area, was considered.

The areas of the different river basins were measured approximately from maps, and were finally adjusted to suit a total area of the United States (which had been determined with care) of 3,025,600 square miles, exclusive of Alaska.

The table shows that more than 96 per cent of the inhabitants live in the country which is drained to the Atlantic ocean; that more than one-half the population live in the region drained by the Gulf of Mexico, and that nearly 44 per cent of the entire population of the country are congregated in the drainage area of the Mississippi river; that only four-tenths of 1 per cent live in the Great Basin, and three and four-tenths per cent on the Pacific coast. It shows further that the proportion living within the region drained to the Atlantic is steadily diminishing, while of this region the part drained to the Gulf of Mexico is becoming relatively more populous, as is the case in a still more marked degree in the Great Basin and the region drained to the Pacific.

TABLE OF POPULATION ACCORDING TO DRAINAGE BASINS, 1890, 1880, AND 1870.

DRAINAGE BASINS.	Approximate area in square miles.	Population 1890.	Population per square mile.	Population 1880.	Population per square mile.	Population 1870.	Population per square mile.
ATLANTIC OCEAN.....	2,178,210	60,220,763	27.6	48,707,352	22.4	37,706,410	17.3
New England coast.....	61,830	4,486,813	72.6	3,811,102	61.6	3,286,416	53.2
Saint John river.....	7,890	53,381	6.8	46,015	5.9	37,544	4.8
Penobscot river.....	8,934	113,179	12.7	111,050	12.4	112,326	12.6
Kennebec river.....	10,102	236,553	23.4	231,345	22.9	224,365	22.2
Merrimac river.....	4,864	616,594	126.8	500,978	103.0	436,238	89.7
Connecticut river.....	11,269	782,216	69.4	692,803	61.5	618,171	54.9
Housatonic river.....	1,933	251,701	130.2	208,920	108.1	182,738	94.5
Middle Atlantic coast.....	83,020	11,482,411	138.3	9,646,057	116.2	8,038,651	96.8
Hudson river.....	13,366	1,094,126	81.9	1,009,082	75.5	959,376	71.8
Delaware river.....	12,012	2,561,113	213.2	2,175,800	181.1	1,834,009	152.7
Susquehanna river.....	27,655	1,965,184	71.1	1,673,847	60.5	1,445,902	52.3
Potomac river.....	14,479	870,135	60.1	791,007	54.6	657,641	45.4
South Atlantic coast.....	132,040	4,248,466	32.2	3,705,807	28.1	2,799,126	21.2
James river.....	9,634	495,910	51.2	448,891	46.4	365,913	37.8
Cape Fear river.....	8,310	239,399	28.8	212,304	25.6	164,094	19.9
Neuse river.....	5,299	216,933	40.9	197,552	37.3	149,761	28.3
Pedee river.....	17,098	600,277	35.1	505,252	29.6	367,785	21.5
Roanoke river.....	9,237	404,281	43.8	364,160	39.4	276,289	29.9
Santee river.....	14,006	607,098	41.3	507,205	34.5	373,389	25.4
Savannah river.....	11,402	446,569	39.2	384,739	33.7	280,733	24.6
Altamaha river.....	14,109	473,967	33.6	401,789	28.5	301,091	21.3
Great Lakes.....	175,340	7,009,839	40.0	5,377,019	30.7	4,226,597	24.1
Saint Lawrence river.....	13,636	474,158	34.8	469,554	34.4	458,534	33.6
Lake Ontario.....	12,387	1,006,668	81.3	926,128	74.8	853,486	68.9
Lake Erie.....	17,207	2,179,269	126.7	1,720,712	100.0	1,372,848	79.8
Lake Huron.....	18,830	439,393	23.3	313,235	16.6	176,914	9.4
Lake Michigan.....	45,876	2,507,562	54.7	1,826,534	39.8	1,327,417	28.9
Lake Superior.....	17,830	155,271	8.7	50,843	2.9	33,737	1.9
Red river.....	39,577	247,518	6.3	69,093	1.8	8,361	0.1
Gulf of Mexico.....	1,725,980	32,993,234	19.1	26,167,367	15.2	19,355,620	11.2
Peninsula of Florida.....	48,900	435,603	8.9	300,342	6.1	214,163	4.4
Apalachicola river.....	18,918	699,713	37.0	608,057	32.1	486,206	25.7
Mobile river.....	43,436	1,425,649	32.8	1,207,680	27.8	938,242	21.6
Tombigbee river.....	18,896	611,388	32.4	499,882	26.5	389,763	20.3
Alabama river.....	23,820	784,099	32.9	679,170	28.5	526,821	22.1
Pascagoula river.....	8,980	129,034	14.4	98,800	11.0	68,476	7.6
Pearl river.....	8,670	175,698	20.3	148,635	17.1	114,588	13.2
Sabine river.....	20,440	172,656	8.4	134,869	6.6	85,413	4.2
Trinity river.....	17,960	449,718	25.0	315,220	17.6	128,244	7.1
Brazos river.....	59,646	512,621	8.6	363,892	6.1	165,986	2.8
Colorado river.....	41,220	183,524	4.5	125,869	3.1	55,004	1.3
Nueces river.....	18,944	41,033	2.2	27,635	1.5	11,204	0.6
San Antonio river.....	16,352	169,847	10.4	122,413	7.5	72,137	4.4
Rio Grande.....	128,792	156,150	1.2	115,517	0.9	79,370	0.6
Mississippi river.....	1,240,039	27,411,522	22.1	21,776,479	17.6	16,333,045	13.2
Yazoo river.....	12,794	415,406	32.5	366,502	28.6	259,563	20.3
Illinois river.....	29,013	1,867,935	64.4	1,474,337	50.8	1,206,706	41.6
Rock river.....	9,732	532,117	54.3	506,895	51.8	497,302	50.8
Wisconsin river.....	12,280	259,778	21.2	208,189	17.0	167,361	13.6
Chippewa river.....	8,892	141,520	15.9	84,240	9.5	43,022	4.8
Saint Croix river.....	7,576	92,854	12.3	59,832	7.9	30,664	4.0
Minnesota river.....	16,000	327,852	20.5	231,065	14.4	119,847	7.5
Cedar river.....	12,402	393,021	31.5	372,556	29.8	290,884	23.3
Des Moines river.....	14,652	423,128	28.9	328,746	22.4	224,093	15.4
Ohio river.....	201,720	10,986,877	54.5	9,588,303	47.5	7,839,424	38.9
Tennessee river.....	43,897	1,384,733	31.5	1,177,144	26.8	927,054	21.1
Cumberland river.....	18,573	720,012	38.8	643,810	34.7	520,088	28.5
Kentucky river.....	7,425	291,022	39.2	253,839	34.2	203,230	27.4
Green river.....	9,065	353,804	39.6	332,056	36.6	262,874	29.0
Licking river.....	3,658	221,478	60.5	200,297	54.8	161,132	44.0
Kanawha river.....	16,690	334,795	20.1	263,947	15.8	182,131	10.9
Monongahela river.....	7,625	495,636	65.0	375,939	49.3	292,326	38.3
Allegheny river.....	11,437	970,869	84.9	809,926	70.8	645,752	56.5

TABLE OF POPULATION ACCORDING TO DRAINAGE BASINS, 1890, 1880, AND 1870—CONTINUED.

DRAINAGE BASINS.	Approximate area in square miles.	Population 1890.	Population per square mile.	Population 1880.	Population per square mile.	Population 1870.	Population per square mile.
ATLANTIC OCEAN—Continued.							
Gulf of Mexico—Continued.							
Mississippi river—Continued.							
Ohio river—Continued.							
Miami river.....	5,400	469,596	87.0	413,592	76.6	351,370	65.1
Scioto river.....	6,480	444,124	68.5	400,856	61.9	337,914	52.1
Muskingum river.....	7,740	541,378	69.9	505,196	65.3	445,934	57.6
Wabash river.....	33,725	1,915,790	56.8	1,727,214	51.2	1,455,300	43.2
Big Sandy river.....	4,050	190,283	47.0	154,012	38.0	109,886	27.1
Missouri river.....	527,155	4,560,561	8.7	2,841,451	5.4	1,604,465	3.0
Big Sioux river.....	7,880	119,337	15.1	51,241	6.5	5,290	0.7
Yellowstone river.....	69,683	21,574	0.3	3,184	0.0	241	0.0
Platte river.....	90,011	647,104	7.2	267,230	3.0	68,471	0.8
Kansas river.....	59,256	985,524	16.6	623,621	10.5	176,308	3.0
Osage river.....	15,444	508,291	32.9	385,848	25.0	273,444	17.7
Arkansas river.....	185,671	1,771,312	9.5	1,141,607	6.1	533,831	2.9
Cimarron river.....	17,360	55,090	3.2	4,293	0.2	1,693	0.1
Canadian river.....	42,710	51,766	1.3	24,859	0.6	18,887	0.4
White river.....	27,925	338,305	12.1	244,455	8.8	147,979	5.3
Red river of Louisiana.....	89,970	955,757	10.6	705,806	7.8	445,366	5.0
Washita.....	19,138	360,566	18.8	281,582	14.7	187,385	9.8
Saint Francis river.....	7,884	162,897	20.7	118,168	15.0	78,428	9.9
GREAT BASIN.....	228,150	256,130	1.1	210,998	0.9	125,384	0.5
Great Salt lake.....	32,400	156,150	4.8	104,621	3.2	65,627	2.0
Humboldt river.....	32,148	38,119	1.2	49,864	1.6	29,592	0.9
PACIFIC OCEAN.....	619,240	2,145,357	3.5	1,237,433	2.0	726,577	1.2
Colorado river.....	225,049	208,643	0.9	109,188	0.5	39,495	0.2
Green river.....	47,222	27,494	0.6	10,709	0.2	4,866	0.1
Grand river.....	26,472	47,349	1.8	14,795	0.6	165	0.0
Little Colorado river.....	29,268	3,821	0.1	3,644	0.1	428	0.0
Gila river.....	68,623	45,917	0.7	28,348	0.4	6,954	0.1
Sacramento river.....	58,824	378,462	6.4	324,393	5.5	240,246	4.1
San Joaquin river.....	29,952	134,206	4.5	83,902	3.0	67,459	2.3
Klamath river.....	14,660	18,199	1.2	14,627	1.0	10,000	0.7
Columbia river.....	216,537	393,415	1.8	222,737	1.0	104,882	0.5
Willamette river.....	11,700	129,782	11.1	78,326	6.7	50,271	4.3
Snake river.....	103,835	142,091	1.4	55,256	0.5	21,530	0.2
Clark fork.....	63,291	46,067	0.7	12,274	0.2	7,215	0.1



CENSUS BULLETIN.

No. 48.

WASHINGTON, D. C.

April 7, 1891.

The White and Colored Population of the South : 1890.

DEPARTMENT OF THE INTERIOR,

CENSUS OFFICE,

WASHINGTON, D. C., March 27, 1891.

The relative rate of increase of the white and colored population of the southern states during the last decade is a matter of such general importance and interest as to demand special attention. What is termed the race count has therefore been made for the South Atlantic and South Central states, and for Missouri and Kansas, in advance of the main work of tabulation. As will be seen from the accompanying tables, the total population embraced in this count is 23,875,259, of which 16,868,205 were white, 6,996,166 colored, and 10,888 Chinese, Japanese, and Indians. In the states herewith included were found in 1890 fifteen-sixteenths of the entire colored population of the United States, so that for the purpose of immediately ascertaining the percentage of increase the returns of these states are adequate and not likely to be materially affected by the returns of the other states and territories, where the colored population is small.

The abnormal increase of the colored population in what is known as the black belt during the decade ending in 1880 led to the popular belief that the negroes were increasing at a much greater rate than the white population. This error was a natural one, and arose from the difficulty of ascertaining how much of the increase shown by the Tenth Census was real and how much was due to the omissions of the census of 1870. This question has been fully discussed in Bulletin No. 16, and it is now merely necessary to add that the tabulations herewith given sustain the theory already advanced, that the high rate of increase in the growth of the colored population as shown in 1880 was apparent, not real, and was due to imperfect enumeration in the southern states in 1870.

Attention is first called to Table I, on the following page, showing the white and colored population of the states under discussion at each census since 1790, together with the number of colored to each one hundred thousand white and the percentage of increase, respectively, of white and colored for the several decades.

The table summarizes the entire case. In 1890 there were in the states under discussion 6,996,166 colored inhabitants, and in 1880, 6,142,360. The colored element increased during the decade at the rate of 13.90 per cent. The white population of these states in 1890 numbered 16,868,205, and in 1880, 13,530,408. They increased during the decade at the rate of 24.67 per cent, or nearly twice as rapidly as the colored element.

In 1880 the proportion of white to persons of color in these states was in the relation of 100,000 to 45,397. In 1890 the proportion of the latter class had diminished, being then as 100,000 to 41,475.

During the past decade the colored race has not held its own against the white in a region where the climate and conditions are, of all those which the country affords, the best suited to its development.

TABLE I.

YEARS.	POPULATION.		Number of colored to 100,000 white.	PER CENT OF INCREASE.	
	White.	Colored.		White.	Colored.
1790.....	1,271,488	689,884	54,258		
1800.....	1,702,080	918,336	53,925	33.94	33.11
1810.....	2,208,785	1,272,119	57,594	29.70	38.52
1820.....	2,831,560	1,653,240	58,386	28.20	29.96
1830.....	3,660,758	2,187,545	59,757	29.28	32.32
1840.....	4,632,530	2,701,901	58,325	26.55	23.51
1850.....	6,222,418	3,442,238	55,320	34.32	27.40
1860.....	8,203,852	4,216,241	51,393	31.84	22.49
1870.....	9,812,732	4,555,990	46,429	19.61	8.06
1880.....	13,530,408	6,142,360	45,397	37.89	34.82
1890.....	16,868,205	6,996,166	41,475	24.67	13.99

Referring again to this table, it is seen that in but three decades, that is, from 1800 to 1830, during a part of which time the slave trade was in progress, has the colored race increased more rapidly than the white. Since 1830 the white people have steadily increased at a more rapid rate than the colored. This increase has not been effected by the aid of immigration, for with the exception of Kansas and Missouri these states have received comparatively few immigrants either from foreign countries or from the northern states.

Similarly the proportion of the colored inhabitants to the white increased somewhat between 1800 and 1830, but since that time it has steadily diminished. In 1830, when this proportion was at its maximum, there were nearly 6 colored inhabitants to 10 white, but this proportion has been reduced to a trifle more than 4 at the present date, or by nearly one-third of its amount.

The deficiencies of the Ninth Census are so apparent in this table that any extended reference to them is wholly unnecessary.

Table II shows for each of the states under discussion the number of white, colored, Chinese, Japanese, and Indian inhabitants according to the census of 1890:

TABLE II.

STATES.	Total population.	White.	Colored.	Chinese.	Japanese.	Indians.
Total.....	23,875,259	16,868,205	6,996,166	2,581	100	8,207
Alabama.....	1,513,017	830,796	681,431	40		750
Arkansas.....	1,128,179	816,517	311,227	131		301
Delaware.....	168,493	139,429	29,022	38		4
District of Columbia.....	230,392	154,352	75,927	86	8	19
Florida.....	391,422	224,461	166,678	101	14	168
Georgia.....	1,837,353	973,462	863,716	110	1	64
Kansas.....	1,427,096	1,374,882	51,251	107		856
Kentucky.....	1,858,635	1,585,526	272,981	29	1	98
Louisiana.....	1,118,587	554,712	562,893	315	39	628
Maryland.....	1,042,390	824,149	218,004	197	6	34
Mississippi.....	1,289,600	539,703	747,720	122	1	2,054
Missouri.....	2,679,184	2,524,468	154,131	413	4	168
North Carolina.....	1,617,947	1,049,191	567,170	15		1,571
South Carolina.....	1,151,149	458,454	692,503	20		172
Tennessee.....	1,767,518	1,332,971	434,300	64	10	173
Texas.....	2,235,523	1,741,190	492,837	727	3	766
Virginia.....	1,656,980	1,014,680	640,867	50	13	370
West Virginia.....	702,794	729,292	33,508	16		8

Table III presents the composition of the population in 1890 and 1880 of each of the states named therein, expressed in percentages of the total population of each state:

TABLE III.

STATES.	1890.			1880.		
	White.	Colored.	All others. (a)	White.	Colored.	All others. (a)
Alabama	54.91	45.04	0.05	52.45	47.53	0.02
Arkansas	72.37	27.59	0.04	73.71	26.25	0.04
Delaware	82.75	17.22	0.03	81.96	18.04	
District of Columbia	66.99	32.96	0.05	66.44	33.55	0.01
Florida	57.35	42.58	0.07	52.92	47.01	0.07
Georgia	52.98	47.01	0.01	52.97	47.02	0.01
Kansas	96.34	3.59	0.07	95.59	4.33	0.08
Kentucky	85.30	14.69	0.01	83.53	16.47	
Louisiana	49.59	50.32	0.09	48.40	51.46	0.14
Maryland	79.06	20.92	0.02	77.51	22.49	
Mississippi	41.85	57.98	0.17	42.36	57.47	0.17
Missouri	94.23	5.75	0.02	93.29	6.70	0.01
North Carolina	64.85	35.05	0.10	61.96	37.95	0.09
South Carolina	39.82	60.16	0.02	39.29	60.70	0.01
Tennessee	75.42	24.57	0.01	73.84	26.14	0.02
Texas	77.89	22.04	0.07	75.22	24.71	0.07
Virginia	61.27	38.70	0.03	58.24	41.76	
West Virginia	95.61	4.39		95.81	4.19	

a Chinese, Japanese, and Indians.

Table IV shows the number of white and colored inhabitants of the same states at each census from 1850 to 1890, inclusive:

TABLE IV.

STATES.	WHITE.					COLORED.				
	1890.	1880.	1870.	1860.	1850.	1890.	1880.	1870.	1860.	1850.
Total	16,868,205	13,530,408	9,812,732	8,293,852	6,222,418	6,996,166	6,142,360	4,555,990	4,216,241	3,442,238
Alabama	830,796	662,185	521,384	526,271	426,514	681,431	600,103	475,510	437,770	345,109
Arkansas	816,517	591,531	362,115	324,143	162,189	311,227	210,666	122,169	111,259	47,708
Delaware	139,429	120,160	102,221	90,589	71,169	29,022	26,442	22,794	21,627	20,363
District of Columbia	151,352	118,006	88,278	60,763	37,941	75,927	59,596	43,404	14,316	13,746
Florida	224,461	142,605	96,057	77,746	47,203	166,678	126,690	91,680	62,677	40,242
Georgia	973,462	816,906	638,926	591,550	521,572	863,716	725,133	545,142	465,698	384,613
Kansas	1,374,882	952,155	346,377	106,390		51,251	43,107	17,198	627	
Kentucky	1,585,526	1,377,179	1,098,692	919,484	761,413	272,981	271,451	222,210	236,167	220,992
Louisiana	554,712	454,954	362,065	357,456	255,491	562,893	483,655	364,210	350,373	262,271
Maryland	824,149	724,693	605,497	515,918	417,943	218,004	210,230	175,391	171,131	165,091
Mississippi	539,703	479,398	382,896	353,899	295,718	747,720	650,291	444,201	437,494	310,808
Missouri	2,524,468	2,022,826	1,603,146	1,063,489	592,004	154,131	145,350	118,071	118,503	90,040
North Carolina	1,049,191	867,242	678,470	629,942	553,028	567,170	531,277	391,650	361,522	316,011
South Carolina	458,454	391,105	289,667	291,300	274,563	692,503	604,332	415,814	412,320	393,944
Tennessee	1,332,971	1,138,831	936,119	826,722	756,836	434,300	403,151	322,331	283,019	245,881
Texas	1,741,190	1,197,237	564,700	420,891	154,034	492,837	393,384	253,475	182,921	58,558
Virginia	1,014,680	880,858	712,089	1,017,299	894,800	640,867	631,616	512,841	548,907	526,861
West Virginia	729,262	592,537	424,033			33,508	25,886	17,980		

Tables V and VI show the number and the percentage of increase of white and colored persons at each decade since 1850-'60, as follows:

TABLE V.

STATES.	INCREASE OF WHITE.				INCREASE OF COLORED.			
	1880 to 1890.	1870 to 1880.	1860 to 1870.	1850 to 1860.	1880 to 1890.	1870 to 1880.	1860 to 1870.	1850 to 1860.
	<i>Number.</i>	<i>Number.</i>	<i>Number.</i>	<i>Number.</i>	<i>Number.</i>	<i>Number.</i>	<i>Number.</i>	<i>Number.</i>
Alabama	168,611	140,801	a4,887	99,757	81,328	124,593	37,740	92,661
Arkansas	224,986	229,416	37,972	161,954	100,561	88,497	10,910	63,551
Delaware	19,269	17,939	11,632	19,420	2,580	3,648	1,167	1,264
District of Columbia	36,346	29,728	27,515	22,822	16,331	16,192	29,088	570
Florida	81,856	46,548	18,311	30,543	39,988	35,001	29,012	22,435
Georgia	156,556	177,980	47,376	69,978	138,583	179,991	79,444	81,085
Kansas	422,727	605,778	230,987		8,144	25,999	16,481	
Kentucky	208,347	278,487	179,208	158,071	1,530	49,241	a13,957	15,175
Louisiana	99,758	92,889	4,609	101,065	79,238	119,445	13,837	88,102
Maryland	99,456	119,196	89,579	97,975	7,774	34,839	4,260	6,040
Mississippi	60,305	96,502	28,997	58,181	97,426	206,090	6,797	126,596
Missouri	501,642	419,680	539,657	471,485	8,781	27,279	a432	28,463
North Carolina	181,949	188,772	48,528	76,914	35,893	139,627	30,128	45,511
South Carolina	67,349	101,438	a1,633	16,737	88,171	188,518	3,494	18,376
Tennessee	194,140	202,712	109,397	69,886	31,149	80,820	39,312	37,138
Texas	543,953	632,537	143,809	266,857	99,453	139,909	70,554	124,363
Virginia	133,822	168,769	b88,823	b152,499	9,251	118,775	a18,086	b22,046
West Virginia	136,725	168,504			7,622	7,906		

a Decrease. b Including West Virginia.

TABLE VI.

STATES.	INCREASE OF WHITE.				INCREASE OF COLORED.			
	1880 to 1890.	1870 to 1880.	1860 to 1870.	1850 to 1860.	1880 to 1890.	1870 to 1880.	1860 to 1870.	1850 to 1860.
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	Per cent.	Per cent.	Per cent.	Per cent.
Alabama	25.46	27.01	a0.93	23.39	13.55	26.20	8.62	26.85
Arkansas	38.03	63.35	11.71	99.80	47.73	72.44	9.81	133.21
Delaware	16.04	17.55	12.84	27.29	9.76	16.00	5.40	6.21
District of Columbia	30.80	33.68	45.28	60.15	27.40	37.31	203.19	4.15
Florida	57.40	48.46	23.55	64.71	31.56	38.17	46.29	55.75
Georgia	19.16	27.86	8.01	13.42	10.11	33.02	17.06	21.08
Kansas	44.40	174.89	225.57		18.89	151.97	2,628.55	
Kentucky	15.13	25.35	19.49	20.76	0.56	22.16	a5.91	6.87
Louisiana	21.93	25.66	1.29	39.91	16.38	32.80	3.95	33.59
Maryland	13.72	19.69	17.36	23.44	3.70	10.86	2.49	3.66
Mississippi	12.58	25.20	8.19	19.67	14.98	46.40	1.55	40.73
Missouri	24.80	26.18	50.74	79.64	6.04	23.10	a0.36	31.61
North Carolina	20.98	27.82	7.70	13.91	6.76	35.65	8.33	14.40
South Carolina	17.22	35.02	a0.56	6.10	14.59	45.34	0.85	4.66
Tennessee	17.05	21.65	13.23	9.23	7.73	25.07	13.89	15.10
Texas	45.43	112.01	34.17	173.25	25.28	55.20	38.57	212.38
Virginia	15.19	23.70	b8.48	b17.04	1.46	23.16	a3.29	b4.18
West Virginia	23.07	39.74			20.44	43.97		

a Decrease. b Including West Virginia.

Table VII shows the number of colored inhabitants in each of the states under discussion at each census from 1850 to 1890, inclusive, under the supposition that the total number of white was 100,000:

TABLE VII.

STATES.	NUMBER OF COLORED TO 100,000 WHITE.				
	1890.	1880.	1870.	1860.	1850.
Alabama	82,021	90,625	91,201	83,183	80,914
Arkansas	38,116	35,614	33,738	34,324	29,415
Delaware	20,815	22,005	22,299	23,874	28,612
District of Columbia	49,191	50,502	49,167	23,560	30,230
Florida	74,257	88,840	95,453	80,618	85,253
Georgia	88,726	88,766	85,322	78,725	73,741
Kansas	3,728	4,527	4,939	589	-----
Kentucky	17,217	19,711	20,225	25,685	29,024
Louisiana	101,475	106,309	100,592	98,018	102,654
Maryland	26,452	29,010	28,966	33,170	39,501
Mississippi	138,543	135,647	126,328	123,596	105,103
Missouri	6,105	7,185	7,365	11,143	15,209
North Carolina	54,058	61,261	57,725	57,390	57,142
South Carolina	151,052	154,519	143,549	141,545	143,480
Tennessee	32,581	35,400	34,433	34,234	32,488
Texas	28,305	32,858	44,887	43,460	38,016
Virginia	63,160	71,705	72,019	52,412	58,880
West Virginia	4,595	4,369	4,240	-----	-----

The last two tables are of special interest, as they illustrate the movements of the colored element during the past half century. An inspection of them makes it evident that there has been no extended northward movement of this element since the time of the civil war. Indeed, with the exception of the District of Columbia, the border states appear to have lost rather than gained, and during the last decade there becomes perceptible a southward movement of the colored element from the border states into those bordering the Gulf, particularly into Mississippi and Arkansas, where they have increased proportionately to the white. Let the states under consideration be divided into two groups, the first comprising Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, Kentucky, Tennessee, Missouri, and Kansas, and the second South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, and Arkansas. In the first of these groups the increase of the white population from 1880 to 1890 was at the rate of 22 per cent, while that of the colored element was but 5.50 per cent. In the second group the rate of increase of the white was 29.63 per cent, while that of the colored was but 19.10 per cent. In the first group the number of colored to 100,000 white diminished between 1880 and 1890 from 26,700 to 23,089, or 13.52 per cent, while in the second it diminished from 80,116 to 73,608, or only 8.12 per cent. There is therefore a perceptible tendency southward of the colored people, which, while by no means powerful, has resulted in drawing a notable proportion of that element from the border states and in producing in two of the far southern states a more rapid increase of the colored element than of the white.

Of the states under discussion, three, namely, South Carolina, Mississippi, and Louisiana, contained in 1890 a larger number of colored people than of white. Of the population of South Carolina more than three-fifths are colored. Five other states, namely, Alabama, Florida, Georgia, North Carolina, and Virginia, contained a colored element ranging from one-third to one-half of the population.

Table VIII, commencing on the following page, gives by counties for each state considered the number of white, colored, and all other persons (that is, Chinese, Japanese, and Indians) for 1890, 1880, and 1870.

In compliance with the laws of the state of California, for the purpose of state apportionment, a special count by race was made by the Census Office in order to separate the Chinese and Indians from the rest of the population, and the result, tabulated by counties, is appended to this bulletin.

TABLE VIII.—ALABAMA.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
The State.....	830,796	662,185	521,384	681,431	600,103	475,510	790	217	98
Autauga.....	4,722	4,397	4,329	8,487	8,710	7,292	121	1	
Baldwin.....	5,835	4,890	3,159	3,806	3,675	2,845		38	2
Barbour.....	13,321	13,091	12,143	21,576	20,884	17,165	1	4	
Bibb.....	9,044	5,887	5,061	4,780	3,600	2,408			1
Blount.....	20,115	14,210	9,263	1,812	1,159	682			
Bullock.....	6,066	6,944	7,223	20,996	22,119	17,251	1	3	
Butler.....	11,368	10,684	8,590	10,273	8,965	6,301			
Calhoun.....	23,891	14,134	10,088	9,941	5,457	3,892	3		
Chambers.....	12,244	11,364	8,974	14,075	12,075	8,588		1	
Cherokee.....	17,625	16,418	9,652	2,834	2,690	1,480			
Chilton.....	11,433	8,651	5,057	3,116	2,142	1,137			
Choctaw.....	8,110	7,390	5,802	9,412	8,341	6,872	4		
Clarke.....	9,629	7,718	7,098	12,995	10,086	7,565		2	2
Clay.....	14,086	11,870	8,823	1,679	1,068	737			
Cleburne.....	12,396	10,308	7,441	822	668	576			
Coffee.....	10,183	6,831	5,151	1,987	1,288	1,020			
Colbert.....	12,240	9,203	7,898	7,949	6,950	4,639			
Conecuh.....	7,956	6,224	4,667	6,638	6,380	4,901		1	6
Cook.....	10,486	10,050	8,544	5,420	5,059	3,394		4	7
Covington.....	6,713	4,968	4,269	823	671	599			
Crenshaw.....	11,732	9,118	8,950	3,692	2,608	2,206	1		
Cullman.....	13,394	6,312		45	43				
Dale.....	13,855	10,563	9,528	3,370	2,122	1,797		2	
Dallas.....	7,906	8,425	8,552	41,437	40,007	32,162	7	1	1
De Kalb.....	19,881	11,993	6,656	1,223	682	470	2		
Elmore.....	11,329	8,747	7,747	10,403	8,755	6,730			
Escambia.....	5,674	4,106	3,047	2,815	1,590	951	177	23	43
Etowah.....	18,097	12,896	8,401	3,829	2,502	1,708			
Fayette.....	11,062	8,873	6,059	1,761	1,262	1,077			
Franklin.....	9,850	8,079	6,693	1,131	1,076	1,313			
Geneva.....	9,643	3,829	2,732	1,047	513	227			
Greene.....	3,192	3,765	3,858	18,815	18,165	14,541		1	
Hale.....	5,053	4,903	4,802	22,448	21,650	16,990			
Henry.....	15,839	11,994	9,534	8,998	6,767	4,657	10		
Jackson.....	24,132	21,074	16,350	3,887	4,033	3,000	7	7	
Jefferson.....	56,953	18,219	9,839	31,531	5,653	2,506	17		
Lamar.....	11,338	9,967	7,330	2,849	2,173	1,563		2	
Lauderdale.....	16,694	14,173	9,921	7,173	6,800	5,170	2	2	
Lawrence.....	12,536	12,642	10,096	8,189	8,750	6,562			
Lee.....	12,149	12,217	10,151	16,545	15,041	11,597		4	2
Limestone.....	12,075	11,637	7,764	9,125	9,963	7,253	1		
Lowndes.....	4,406	5,645	5,086	27,084	25,528	20,633		3	
Macon.....	4,148	4,687	5,103	14,290	12,784	12,620	1		4
Madison.....	19,228	18,591	15,527	18,886	19,034	15,740	5		
Marengo.....	7,814	7,277	6,090	25,281	23,612	20,058		1	3
Marion.....	10,786	8,841	5,835	561	520	224		3	
Marshall.....	17,552	13,084	8,504	1,381	1,490	1,367	2	5	
Mobile.....	28,136	27,187	28,165	23,046	21,443	21,107	405	23	9
Monroe.....	8,327	7,780	6,625	10,669	9,234	7,672	3	77	17
Montgomery.....	14,530	13,467	12,419	41,636	38,899	31,285	6		
Morgan.....	17,903	11,758	8,829	6,183	4,670	3,358	3		
Perry.....	6,806	7,150	7,142	22,524	23,591	17,833	2		
Pickens.....	9,289	9,132	8,052	13,184	12,347	9,638			
Pike.....	15,633	14,368	12,708	8,789	6,272	4,625	1		
Randolph.....	13,984	13,155	10,365	3,235	3,420	1,641			
Russell.....	5,792	6,182	5,946	18,301	18,655	15,690			
Saint Clair.....	14,285	11,621	7,295	3,061	2,834	2,065	7	7	
Shelby.....	14,281	12,253	8,840	6,605	4,983	3,378			
Sumter.....	5,919	6,451	5,202	23,655	22,277	18,907			
Talladega.....	15,343	10,856	8,469	14,003	12,504	9,595			
Tallapoosa.....	16,854	16,108	12,772	8,606	7,293	4,190			1
Tuscaloosa.....	18,213	15,216	11,787	12,138	9,741	8,294	1		
Walker.....	14,409	8,978	6,235	1,669	501	308			
Washington.....	4,716	2,807	2,125	3,219	1,729	1,787		2	
Wilcox.....	6,648	6,711	6,767	24,168	25,117	21,610			
Winston.....	6,520	4,236	4,134	32	17	21			

TABLE VIII.—ARKANSAS.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
The State	816,517	591,531	362,115	311,227	210,666	122,169	435	328	187
Arkansas	7,861	4,971	3,982	3,571	3,067	4,212			74
Ashley	6,324	5,026	4,278	6,971	5,130	3,764			
Baxter	8,511	5,959		16	45				
Benton	27,601	20,167	13,640	108	128	182	7	33	9
Boune	15,724	12,058	6,958	92	88	71			
Bradley	5,046	4,075	6,117	2,926	2,210	2,529			
Calhoun	4,545	3,583	2,753	2,722	2,088	1,100			
Carroll	17,200	13,272	5,743	82	60	37	6	5	
Chicot	1,303	1,563	1,816	10,112	8,495	5,393	4	59	5
Clark	14,275	10,567	8,461	6,709	5,203	3,492	13	1	
Clay	12,162	7,191		37	22		1		
Cleburne	7,832			49			3		
Cleveland (a)	8,066	6,041		3,296	2,329				
Columbia	12,507	8,587	7,679	7,385	5,503	3,718	1		
Couway	11,742	9,546	7,482	7,717	3,296	630		3	
Craighead	11,485	6,776	4,324	540	261	253			
Crawford	19,392	13,332	7,961	2,394	1,392	988	18	16	8
Crittenden	2,015	1,899	1,253	11,925	7,516	2,576			3
Cross	4,765	3,261	2,626	2,937	1,789	1,289	1		
Dallas	6,093	4,299	3,956	3,288	2,206	1,751	5		
Desha	2,049	2,452	2,185	8,267	6,514	3,934	8	7	6
Drew	7,596	6,472	6,106	9,841	5,759	3,854	5		
Faulkner	14,970	11,368		3,372	1,418				
Franklin	19,239	14,455	8,976	694	493	651	1	3	
Fulton	10,899	6,684	4,758	84	36	85	1		
Garland	12,518	7,457		2,802	1,562		8	4	
Grant	6,793	5,629	3,604	1,046	556	339	1		
Greene	12,748	7,405	7,417	160	75	156			
Hempstead	11,717	9,593	7,439	11,069	9,421	6,329	10	1	
Hot Spring	10,368	7,030	5,226	1,235	745	650			1
Howard	10,695	7,409		3,089	2,508		5		
Independence	20,357	16,703	13,658	1,533	1,382	908	71	1	
Izard	12,772	10,635	6,624	266	222	162			
Jackson	10,831	8,113	5,656	4,347	2,763	1,612	1	1	
Jefferson	10,788	5,331	6,556	30,068	17,011	10,107	25	44	19
Johnson	16,133	11,073	8,539	625	491	613		1	
Lafayette	3,035	2,116	3,981	4,694	3,614	5,158	1		
Lawrence	12,122	8,315	5,735	892	467	246			
Lee	4,560	4,138		14,318	9,159		8		
Lincoln	3,763	4,212		6,492	5,040			3	
Little River	4,854	3,064	1,358	4,019	3,335	1,878		5	
Logan	19,632	13,901		1,134	984		8		
Lonoke	11,170	8,143		8,092	4,093		1		
Madison	17,345	11,331	8,081	57	124	150			
Marion	10,359	7,864	3,980	31	43	19			
Miller	8,065	5,324		6,617	4,595		2		
Mississippi	5,659	4,671	2,662	5,918	2,654	971	58	7	
Monroe	6,084	4,365	5,135	9,243	5,209	3,209	9		1
Montgomery	7,615	5,471	2,864	308	258	120			
Nevada	10,442	9,236		4,389	3,722		1	1	
Newton	9,944	6,115	4,365	6	5	9			
Ouachita	7,971	5,504	7,511	9,059	6,253	5,458	3	1	6
Perry	4,506	3,072	2,395	942	890	290			
Phillips	5,604	5,444	4,871	19,731	15,809	10,501	6	9	
Pike	8,052	5,951	3,367	485	392	421		2	
Polk	3,651	1,992	1,494	621	290	225			1
Polk	9,237	5,792	3,323	46	61	45		4	8
Pope	17,815	13,413	7,811	1,643	909	575			
Prairie	6,977	5,691	3,793	4,396	2,734	1,811	1	10	
Pulaski	25,219	17,667	18,348	22,046	14,921	13,768	64	28	10
Randolph	13,883	11,697	7,109	602	627	357			
Saint Francis	5,473	4,921	4,268	8,069	3,467	2,446	1	1	
Saine	9,942	7,586	3,726	1,369	1,366	185			
Scott	12,593	9,085	7,362	34	83	121	8	6	
Searcy	9,638	7,262	5,584	26	16	30			
Sebastian	29,397	17,970	11,545	3,741	1,541	1,354	62	49	41
Sevier	8,600	5,088	3,523	1,468	1,086	968	4	8	1
Sharp	10,242	8,871	5,286	176	176	114			
Stone	6,930	4,984		113	99			6	
Union	8,672	6,985	5,675	6,405	6,434	4,896			
Van Buren	8,403	9,447	4,988	164	118	119			
Washington	31,005	22,894	16,590	1,617	944	674	2	6	2
White	20,262	15,761	9,146	2,684	2,684	1,200	1	1	1
Woodruff	6,438	4,163	4,265	7,570	4,483	2,686			
Yell	16,600	12,733	7,281	1,415	1,118	767			

a Formerly Dorsey county.

TABLE VIII.—DELAWARE.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
The State	139,429	120,160	102,221	20,022	26,442	22,794	42	6	
Kent	24,418	24,760	22,640	8,243	8,114	7,164	3		
New Castle	82,440	65,074	53,323	14,703	12,636	10,192	30	6	
Sussex	32,571	30,326	26,258	6,076	5,692	5,438			

FLORIDA.

The State	224,461	142,605	96,057	166,678	126,600	91,689	283	198	2
Alachua	9,623	6,446	4,035	13,310	10,016	12,303	1		
Baker	2,575	1,660	1,035	758	643	290			
Bradford	5,919	4,822	2,847	1,597	1,200	824			
Brevard	2,780	1,379	1,107	588	84	19	24	15	
Calhoun	1,127	1,184	754	554	396	244			
Citrus (a)	2,082			312					
Clay	3,626	2,265	1,699	1,527	573	399	1		
Columbia	6,330	4,820	4,107	6,547	4,769	3,228			
Dade	637	190	72	89	67	13	185		
De Soto (a)	4,803			141					
Duval	11,895	8,580	5,141	14,878	10,850	6,780	27	1	
Escambia	11,416	6,854	4,937	8,765	5,302	2,880	7		
Franklin	1,943	1,100	781	1,305	592	475			
Gadsden	4,430	4,114	3,704	7,464	8,055	6,038			
Hamilton	5,355	4,472	3,386	3,172	2,318	2,303			
Hernando	1,585	3,319	2,083	801	929	854			1
Hillsborough	11,551	4,899	2,670	2,960	915	546	30		
Holmes	4,146	2,043	1,435	190	106	137		21	
Jackson	6,991	5,637	3,930	10,553	8,735	5,598			
Jefferson	3,502	3,397	3,501	12,255	12,608	9,897			
Lafayette	3,443	2,268	1,586	242	173	197	1		
Lake	6,145			1,889					
Lee (a)	1,334			80					
Leon	3,054	2,822	2,805	14,698	16,840	12,341			
Levy	4,408	3,732	1,623	2,178	2,035	395			
Liberty	819	814	727	633	548	323			
Madison	5,494	5,600	4,420	8,822	9,184	6,692		5	
Manatee	2,710	3,378	1,843	185	135	88		31	
Marion	9,225	4,741	2,926	11,570	8,305	7,878	1		
Monroe	12,731	7,659	4,631	6,035	3,197	1,026	30	84	
Nassau	3,947	3,075	2,277	4,342	3,547	1,970		13	
Orange	9,045	5,595	1,997	3,534	1,023	198	5		
Osceola (a)	2,052			478			3		
Pasco (a)	3,865			384					
Polk	7,097	3,033	2,687	808	122	482		26	
Putnam	6,355	3,845	2,487	4,828	2,416	1,334	3		
Saint John	5,499	3,170	1,937	3,295	1,363	681	8	2	
Santa Rosa	5,701	4,773	2,760	2,260	1,872	562			
Sumter	3,853	3,501	1,972	1,499	1,185	980	1		
Suwannee	5,925	4,021	2,121	4,998	3,140	1,435			
Taylor	1,967	2,114	1,374	155	165	79			
Volusia	5,984	2,755	1,395	2,482	538	328	1		
Wakulla	1,738	1,563	1,562	1,379	1,160	944			
Walton	4,065	3,685	2,636	751	516	405			
Washington	5,099	3,171	1,928	1,327	918	373			1

GEORGIA.

The State	973,402	816,906	638,926	863,716	725,133	545,142	175	141	41
Appling	6,186	4,084	4,110	2,490	1,192	976			
Baker	1,681	1,742	1,888	4,563	5,565	4,955			
Baldwin	5,209	4,512	3,844	9,496	9,294	6,774	2		
Banks	7,002	5,830	4,052	1,560	1,507	921			
Bartow	14,510	12,419	11,846	6,105	6,271	4,719	1		1
Barrien	8,256	5,783	4,057	2,438	836	460			1
Bibb	18,846	11,429	9,831	23,510	15,700	11,424	5	18	
Brooks	6,296	5,670	4,111	7,683	6,057	4,231			
Bryan	2,768	2,368	1,647	2,752	2,561	3,605			
Bulloch	8,972	5,797	3,866	4,740	2,256	1,744			
Burke	5,758	6,080	4,243	22,742	21,031	13,436	1	8	
Butts	5,128	4,277	3,496	5,437	4,034	3,445			
Calhoun	2,221	2,354	2,026	6,217	4,670	3,477			
Camden	2,019	2,091	1,468	4,159	4,092	3,157			
Campbell	5,004	6,085	6,589	3,511	8,885	2,587			

a New county.

TABLE VIII.—GEORGIA—CONTINUED.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
Carroll	18,306	14,591	10,473	3,905	2,310	1,300			
Catoosa	4,788	4,127	3,793	643	612	616			
Charlton	2,453	1,704	1,496	881	360	401	1		
Chatham	22,823	17,404	10,760	34,902	27,515	24,518	15	14	1
Chattahoochee	1,822	2,130	2,654	3,080	3,540	3,405			
Chattanooga	9,185	7,981	5,399	2,017	2,040	1,503			
Cherokee	13,890	12,669	9,117	1,521	1,626	1,281	1		1
Clarke	7,029	5,313	6,488	8,154	6,388	6,453	3	1	
Clay	2,899	2,708	2,644	4,018	3,852	2,849			
Clayton	5,242	4,938	3,734	3,053	3,089	1,743			
Clinch	4,262	3,300	3,437	2,330	838	507			1
Cobb	15,435	14,734	10,593	6,849	6,012	3,217	2	2	4
Coffee	6,592	4,028	2,514	3,887	1,042	678	4		
Colquitt	4,320	2,422	1,517	474	105	137			
Columbia	3,214	3,030	4,080	8,007	7,435	9,449			
Coweta	9,729	9,905	7,856	12,025	11,797	8,019		7	
Crawford	4,151	3,940	3,284	5,164	4,716	4,273			
Dade	4,095	3,618	2,788	1,102	1,084	245			
Dawson	5,349	5,470	4,632	1,263	556	337		2	
Decatur	9,065	8,889	7,465	10,862	10,183	7,718	22		
De Kalb	11,184	9,954	7,352	6,095	4,543	2,662			
Dodge	6,127	3,506	4,935	5,325	1,852	1,852			
Dooly	9,188	6,592	4,935	8,958	5,828	4,855			
Dougherty	1,944	1,952	2,003	10,262	10,070	9,424			
Douglas	5,996	5,463	4,451	1,798	1,471				
Early	3,578	3,015	2,826	6,214	4,596	4,172			
Echols	2,045	2,053	1,513	1,094	500	465			
Effingham	3,369	3,228	2,507	2,230	2,751	1,704			3
Elbert	7,484	6,085	4,386	7,892	6,872	4,863			
Emanuel	9,279	6,060	4,451	5,423	3,085	1,703	1	14	
Fannin	8,604	7,112	5,285	120	133	144			
Fayette	5,659	5,742	5,083	3,069	2,803	2,538			
Floyd	17,848	14,958	11,473	10,536	9,460	5,753	7		4
Forsyth	9,886	9,072	6,862	1,268	1,487	1,121	1		
Franklin	11,363	8,906	6,034	3,307	2,547	1,859			
Fulton	48,891	28,295	18,164	35,743	20,842	15,282	21		
Gilmer	8,994	8,258	6,527	80	120	117		2	
Glascok	2,520	2,506	1,917	1,200	1,071	819			
Glynn	5,593	2,195	1,926	7,817	4,300	3,450	10	2	
Gordon	11,008	9,347	7,720	1,750	1,820	1,536		4	6
Greene	5,330	5,573	4,298	11,721	11,974	8,156			
Gwinnett	10,889	16,016	10,272	3,010	3,515	2,159			
Habersham	9,989	7,357	5,373	1,584	1,361	949			
Hall	15,301	13,040	8,317	2,746	2,258	1,290			
Hancock	4,866	5,044	3,645	12,283	11,943	7,672		2	
Haralson	10,170	5,821	3,685	1,146	153	319			
Harris	5,907	6,450	5,791	10,890	9,286	7,493		22	
Hart	7,878	6,212	4,841	3,009	2,882	1,942			
Heard	6,192	5,674	5,218	3,365	3,095	2,648			
Henry	8,610	7,901	6,269	7,610	6,229	3,833		3	
Houston	5,220	6,021	5,071	16,393	16,390	15,332			3
Irwin	4,204	2,161	1,541	2,112	535	296			
Jackson	13,705	11,139	7,471	5,471	5,157	3,710		1	
Jasper	5,361	4,258	3,881	8,518	7,593	6,555			
Jefferson	6,345	5,581	4,247	10,868	10,090	7,943			
Johnson	4,614	3,455	2,040	1,515	1,345	915			
Jones	3,879	3,753	2,991	8,830	7,800	6,445			
Laurens	7,556	5,702	4,180	6,181	4,351	3,654			
Lee	1,513	1,739	1,924	7,561	8,837	7,633		1	
Liberty	4,145	3,581	2,428	8,734	7,061	5,260	8	7	
Lincoln	2,454	2,254	1,797	3,692	4,158	3,616			
Lowndes	7,041	5,412	4,276	8,058	5,637	4,045	3		
Lumpkin	6,419	6,075	4,699	448	461	462			
McDuffie	3,263	3,430		6,526	6,019				
McIntosh	1,241	1,546	1,196	5,229	4,695	3,288			7
Macon	4,132	4,288	3,975	9,051	7,387	7,483			
Madison	7,325	5,392	3,646	3,699	2,580	1,681			
Marion	3,410	4,294	4,169	4,318	4,304	3,830			1
Marion	9,164	7,797	6,387	11,580	9,854	7,369			
Miller	2,689	2,327	2,135	1,586	1,393	956			
Milton	5,532	5,484	3,818	676	777	466			
Mitchell	4,762	4,189	3,683	6,144	5,203	2,950			
Monroe	6,534	6,093	6,409	12,093	12,115	10,894			
Montgomery	5,553	3,510	2,478	3,695	1,871	1,108			
Morgan	5,028	4,240	3,637	11,012	9,782	7,058	1	1	1
Murray	7,360	7,362	5,743	496	906	757	5	1	
Muscogee	12,276	8,995	7,441	15,475	10,327	9,220	10		2
Newton	7,121	6,740	8,601	7,189	6,883	6,014			
Oconee	3,867	3,327		3,846	3,024				
Oglethorpe	5,617	5,469	4,641	11,394	9,931	7,141			

TABLE VIII.—GEORGIA—CONTINUED.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
Paulding	10,422	9,903	7,083	1,526	984	556			
Pickens	7,825	6,645	5,188	357	145	129			
Pierce	4,380	3,065	1,964	1,998	1,472	814	1	1	
Pike	8,107	7,780	6,990	8,193	8,069	4,906			
Polk	10,208	7,805	5,244	4,736	4,147	2,578	1		
Pulaski	6,657	5,824	5,955	9,902	8,225	5,984		9	1
Putnam	3,476	3,518	3,016	11,366	11,021	7,445			
Quitman	1,416	1,773	1,773	3,055	2,619	2,377			
Rabun	5,439	4,437	3,137	167	197	119			
Randolph	5,748	5,545	5,084	9,519	7,796	5,477			
Richmond	22,504	17,185	13,157	22,662	17,464	12,565	28	16	2
Rockdale	4,004	4,149		2,719	2,689				
Schley	2,215	2,229	2,278	3,228	3,073	2,851			
Screven	7,018	6,173	4,287	7,406	6,613	4,888			
Spalding	5,802	5,439	5,327	7,315	7,146	4,878			
Stewart	4,154	4,376	5,104	11,528	9,622	9,100			
Sumter	6,875	6,050	5,920	15,232	12,189	10,639			
Talbot	4,088	4,448	4,761	9,220	9,697	7,152			
Taliaferro	2,435	2,312	1,809	4,856	4,722	2,987			
Tattnall	7,084	5,014	3,580	3,169	1,974	1,280			
Taylor	4,578	4,770	4,181	4,088	3,827	2,962			
Telfair	3,116	2,666	2,100	2,361	2,161	1,145		1	
Terrell	5,272	4,298	3,769	9,231	6,182	5,284			
Thomas	11,121	8,384	6,160	15,030	12,213	8,363	3		
Towns	3,988	3,157	2,623	76	104	155			2
Troup	7,027	6,565	6,408	13,696	13,970	11,224			
Twiggs	2,730	2,844	2,913	5,465	6,074	5,632			
Union	7,582	6,321	5,153	107	110	114			
Upson	6,099	6,133	4,865	6,089	6,267	4,565			
Walker	11,320	9,492	8,396	1,962	1,563	1,529		1	
Walton	10,223	9,321	6,876	7,244	6,301	4,162			
Ware	5,138	3,015	1,834	3,050	1,144	452	14		
Warren	4,102	4,039	4,285	6,855	6,846	6,260			
Washington	10,262	9,449	7,530	14,975	12,515	8,312			
Wayne	5,271	4,060	1,798	2,214	1,320	379			
Webster	2,403	2,667	2,439	3,292	2,570	2,238			
White	5,482	4,751	4,042	669	590	564			
Whitfield	10,949	9,689	8,606	1,966	2,210	1,511	1	1	
Wilcox	4,794	2,411	1,902	3,183	698	537	3		
Wilkes	5,564	5,173	3,969	12,517	10,812	7,827			
Wilkinson	5,507	6,550	4,684	5,274	5,511	4,699			
Worth	5,829	4,068	2,673	4,219	1,824	1,105			

KANSAS.

The State	1,374,882	952,155	340,377	51,251	42,107	17,108	963	834	914
Allen	13,111	10,952	6,869	398	350	162		1	1
Anderson	13,883	8,871	5,108	319	186	112	1		
Arapahoe		3							
Atchison	23,513	23,237	14,368	3,236	3,410	1,136	9	21	3
Barber	7,940	2,652		33	8			1	
Barton			2						
Bourbon	12,825	10,022		347	296				
Brown	20,266	17,866	14,297	2,301	1,716	770	8	9	9
Buffalo	19,874	12,554	6,721	439	263	95	6		7
Butler	23,948	18,527	3,002	106	59	30	1		3
Chase	8,050	5,962	1,969	182	119	6	1		
Chautauqua	12,069	10,915		228	144			13	
Cherokee	20,383	20,031	10,899	1,362	1,861	134	25	13	5
Cheyenne	4,401	37							
Clark	2,350	169		7	4				
Clay									
Cloud	15,938	12,200	2,932	206	119	10		1	
Coffey	19,230	15,302	2,316	63	41	7	2		
Comanche	15,052	11,004	6,045	204	433	156		1	
Cowley	2,517	369		33	3		1		
Crawford	33,819	21,316	1,175	647	221		12	1	
Decatur	20,862	16,749	8,158	433	100	2	1	2	
Dickinson	8,403	4,179		10	1		1		
Doniphan	22,094	15,170	3,026	178	81	17	1		
Douglas	12,758	13,343	13,135	776	914	833	1		1
Douglas	20,344	18,476	18,232	3,172	3,217	2,352	445	7	8
Edwards									
Elk	3,515	2,353		85	56				
Ellis	12,210	10,602		6	21				
Ellsworth	7,866	6,111	1,304	76	68	31			1
Ellsworth	8,140	8,385	1,159	125	107	26	1	2	

TABLE VIII.—KANSAS—CONTINUED.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
Finney	3,277			73					
Foote		410			1				
Ford	5,252	3,048	317	55	73	109	1	1	1
Franklin	19,396	15,847	9,961	881	923	364	2	27	60
Garfield	876			5					
Geary (a)	10,042	6,653	5,394	375	339	128	6	2	4
Gove	2,955	1,186		39	10				
Graham	4,499	3,774		529	484		1		
Grant	1,262	9		46					
Gray	2,406			9					
Greely	1,264	3							
Greenwood	16,140	10,468	3,449	169	80	35			
Hamilton	1,970	168		57					
Harper	13,180	4,114		85	19		1		
Harvey	17,314	11,351		284	98		3	2	
Haskell	1,076			1					
Hodgeman	2,230	1,575		165	129				
Howard			2,794						
Jackson	14,418	10,520	5,537	295	165	45	3	33	71
Jefferson	15,917	14,772	11,901	701	790	625	2	1	
Jewell	19,345	17,457	207	4	18				
Johnson	16,439	15,337	13,241	936	899	438	10	17	5
Kansas			9						
Kearny	1,561	150		10					
Kingman	11,736	3,711		87	2				
Kiowa	2,857			15			1		
Labette	25,503	20,517	9,879	2,058	2,179	94	25	39	
Lane	2,055	601		5					
Leavenworth	33,748	27,383	28,148	4,713	4,970	4,284	24	2	12
Lincoln	9,669	8,517	516	39	65		1		
Linn	16,418	14,481	11,504	797	815	655		2	15
Logan	8,359			25					
Lyon	22,150	16,298	7,888	1,046	1,027	126		1	
McPherson	21,561	17,091	7,27	60	49	11	3	3	
Marion	20,377	12,356	769	161	97	1	1		1
Marshall	23,698	15,905	6,893	303	231	8	1		
Meade	2,516	296		25			1		
Miami	18,620	16,901	11,248	992	868	466		33	11
Mitchell	14,975	14,870	485	60	41		2		
Montgomery	22,140	17,528	7,496	954	684	65	10	1	3
Morris	10,876	8,732	2,152	505	532	72		1	1
Morton	716			8					
Nemaha	19,022	12,387	7,316	225	75	23	2		
Nessho	18,207	14,735	10,130	337	374	45	17	12	31
Ness	4,943	3,722	2	1					
Norton	10,579	6,966		37	32		1		
Osage	24,342	18,905	7,530	720	571	118		166	
Osborne	11,969	12,456	33	122	61		1		
Ottawa	12,506	10,239	2,125	74	68	2	1		
Pawnee	5,068	5,364	173	134	32	6	2		
Phillips	13,490	11,897		171	117				
Pottawatomie	17,326	15,894	7,255	264	233	443	132	223	150
Pratt	7,937	1,852		180	38		1		
Rawlins	6,756	1,623							
Reno	26,711	12,747		363	77		5	2	
Republic	18,973	14,898	1,281	29	15				
Rice	14,327	9,235	5	122	57		2		
Riley	12,841	10,106	5,035	342	324	70			
Rooks	7,951	8,056		67	56				
Rush	5,199	5,485		6	5				
Russell	7,271	7,317	143	62	34	13			
Sallme	16,945	13,528	4,240	497	280	6			
Scott	1,262	43							
Sedgwick	42,203	18,459	1,085	1,407	268	9	16	26	1
Sequoyah		568							
Seward	1,498	5		5					
Shawnee	42,000	29,655	12,032	6,194	5,356	729	78	82	360
Sheridan	3,733	1,567		18					
Sherman	5,243	13		2	15				
Smith	15,611	13,868	66						
Stafford	8,320	4,632		200	123				
Stanton	1,031	5							
Stevens	1,399	12		19					
Sumner	30,698	20,698	22	174	104		10	10	
Thomas	5,532	161		6					

a Formerly Davis county.

TABLE VIII.—KANSAS—CONTINUED.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
Trego.....	2,494	2,510	165	41	25	1			
Wabunsee.....	10,943	8,074	3,183	743	646	85	34	36	94
Wallace.....	2,429	679	536	39	7	2			
Washington.....	22,877	14,891	4,079	17	19	2			
Wichita.....	1,820	14		7					
Wilson.....	15,201	13,698	6,689	80	77	5	5		
Woodson.....	8,947	6,467	3,793	73	56	34	1	12	
Wyandotte.....	47,340	14,539	7,830	7,028	4,676	2,120	30	28	56

KENTUCKY.

The State.....	1,585,526	1,377,179	1,098,692	272,981	271,451	222,210	128	60	109
Adair.....	11,872	10,907	9,229	1,849	2,171	1,836			
Allen.....	12,561	11,020	9,192	1,131	1,069	1,104			
Anderson.....	9,562	8,292	4,761	1,018	1,069	698			
Ballard.....	6,912	12,653	11,009	1,478	1,725	1,477			
Barren.....	17,672	17,380	14,157	3,818	4,941	3,623			
Bath.....	11,228	9,965	8,443	1,585	2,017	1,702			
Bell.....	9,551	5,874	3,620	769	181	111	2		
Benton.....	11,093	10,764	9,684	1,153	1,232	1,012			
Bourbon.....	10,051	8,642	8,186	6,925	7,314	6,677			
Boyd.....	13,268	11,608	8,282	764	556	201	1	1	
Boyle.....	8,089	7,193	5,836	4,859	4,737	3,679			
Brecken.....	11,717	12,633	10,773	652	816	636			
Breckinridge.....	8,532	7,557	5,491	173	185	181			
Bullitt.....	16,782	15,282	11,788	2,194	2,294	1,682			
Bullitt.....	7,238	7,214	6,587	1,053	1,307	1,194			
Butler.....	13,174	11,361	8,761	782	820	643			
Caldwell.....	10,431	9,085	8,748	2,755	2,187	2,078			
Calloway.....	13,437	12,080	8,598	1,178	1,215	812			
Campbell.....	43,496	36,997	27,123	712	441	282		2	1
Cardinal.....	7,187			425					
Carroll.....	8,493	8,182	5,649	773	771	540			
Carter.....	17,069	21,974	7,409	135	371	190			
Cass.....	11,385	10,375	8,340	613	608	614			
Christian.....	18,758	17,043	13,415	15,359	14,639	9,812	1		
Clark.....	10,574	7,929	7,167	4,869	4,186	3,715			
Clay.....	11,962	9,516	7,862	467	706	495	18		
Clinton.....	6,777	6,301	6,205	270	311	292			
Crittenden.....	12,132	10,537	8,572	927	1,151	809			
Cumberland.....	7,416	7,327	6,181	1,036	1,567	1,509			
Daviess.....	27,650	22,876	17,111	5,468	4,854	3,683	2		
Edmonson.....	7,542	6,667	4,233	463	555	226			
Elliott.....	9,179	6,524	4,111	35	43	22			
Estill.....	10,223	9,349	8,590	613	511	599			
Fayette.....	21,899	16,649	14,142	13,797	12,974	12,513	2		1
Fleming.....	14,437	13,646	11,842	1,641	1,575	1,556			
Floyd.....	11,162	9,977	7,706	138	199	171	16		
Franklin.....	16,229	13,839	10,637	5,036	4,860	4,663	2		
Fulton.....	7,778	6,371	5,224	2,227	1,605	937		1	
Gallatin.....	4,109	4,185	4,474	502	647	600			
Garrard.....	8,109	8,000	6,972	3,029	3,695	3,404			
Grant.....	12,188	12,350	9,020	533	733	509			
Graves.....	25,337	21,287	17,069	3,195	2,851	2,323	2		
Grayson.....	18,189	15,377	11,173	499	407	407			
Green.....	9,516	9,463	7,442	1,947	2,408	1,937			
Greenup.....	11,563	12,432	11,002	338	439	461	10		
Hancock.....	8,415	7,759	5,861	799	803	729		1	1
Hardin.....	19,048	19,282	13,429	2,256	3,282	2,276			
Harrison.....	6,038	5,164	4,304	159	114	99			12
Harrison.....	14,362	13,572	10,615	2,552	2,932	2,373			
Hart.....	14,330	14,294	11,495	2,109	2,839	2,192			
Henderson.....	21,141	16,943	12,467	8,391	7,572	5,990	4		
Henry.....	11,767	11,623	8,628	2,397	2,869	2,438			
Hickman.....	9,814	8,687	6,818	1,822	1,964	1,635	1		
Hopkins.....	19,880	16,412	11,958	3,625	2,710	1,869			
Jackson.....	8,206	6,665	4,496	55	45	51		28	
Jefferson.....	154,827	129,408	99,806	23,749	25,595	19,146	22	7	1
Jessamine.....	7,521	6,463	5,199	3,727	4,401	3,439			
Johnson.....	10,939	9,052	7,373	88	103	37			84
Keaton.....	51,492	41,453	34,439	2,756	2,525	1,657	3	2	
Knott.....	5,368			70					
Knox.....	12,999	9,922	7,737	763	662	557		3	
La Rue.....	8,622	8,746	7,270	811	1,047	995			
Laurel.....	13,265	8,864	5,872	540	267	144	4		
Lawrence.....	17,488	13,021	8,376	213	241	121	1		
Lee.....	5,735	4,624	2,924	469	230	131			

TABLE VIII.—KENTUCKY—CONTINUED.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
Leslie	3,924	3,712		40	28				
Letcher	6,834	6,459	4,479	86	142	129			
Lewis	14,618	12,925	8,887	185	229	228			
Lincoln	12,259	11,172	7,871	3,793	3,908	3,076			
Livingston	8,717	8,130	7,147	749	1,034	1,052	8	1	1
Logan	17,155	16,977	14,706	6,648	7,381	5,723	9		
Iyon	6,153	5,280	4,814	1,475	1,488	1,419			
McCracken	15,239	11,878	10,699	5,810	4,383	3,289	2	1	
McLean	9,072	8,445	6,800	815	848	814			
Madison	16,872	14,764	13,271	7,476	7,288	6,272			
Magonia	9,018	6,794	4,565	178	150	179			
Marion	12,443	11,189	9,495	3,204	3,504	3,343	1		
Marshall	10,943	9,207	9,070	344	440	385			
Martin	4,186	3,025		23	32				
Mason	16,521	16,077	14,544	4,251	4,392	3,582	1		
Meade	8,674	9,049	8,191	810	1,274	1,294			
Menifee	4,633	3,707	1,970	33	48	16			
Mercer	11,924	10,394	9,834	3,110	3,148	3,310			
Metcalfe	8,949	8,387	7,073	922	1,036	861			
Mourne	10,416	10,080	8,442	573	661	780			
Montgomery	8,632	7,000	4,858	3,734	3,566	2,699	1		
Morgan	11,199	8,422	5,931	50	33	44			
Muhlenberg	15,571	13,020	11,065	2,384	2,078	1,634			
Nelson	12,536	11,893	10,880	3,881	4,716	3,918			
Nicholas	9,442	10,119	7,885	1,322	1,750	1,244			
Ohio	21,580	18,205	14,168	1,366	1,464	1,393			
Oldham	5,066	5,456	6,217	1,688	2,211	2,810			
Owen	16,242	15,898	13,133	1,434	1,503	1,176			
Owsley	5,890	4,853	3,812	85	89	75			2
Pendleton	15,819	15,922	13,389	527	780	611			
Perry	6,168	5,468	4,173	163	139	96			5
Pike	17,291	12,826	9,460	177	174	102		1	
Powell	4,304	3,352	2,369	394	287	239			
Pulaski	24,397	20,122	16,595	1,333	1,196	1,075	1		
Robertson	4,519	5,531	5,142	165	283	257			
Rockcastle	9,657	9,233	6,776	184	437	369			
Rowan	6,027	4,314	2,959	102	106	32			
Russell	7,861	7,237	5,516	275	354	293			
Scott	11,462	9,963	7,651	5,084	5,002	3,955			1
Shelby	11,659	11,258	10,350	4,862	5,555	5,383			
Simpson	8,413	7,844	7,406	2,465	2,797	2,167			
Spencer	5,413	5,414	4,477	1,346	1,626	1,479	1		
Taylor	7,897	7,360	6,376	1,456	1,899	1,850			
Todd	10,352	9,427	7,762	6,461	6,567	4,860	1		
Trigg	10,227	10,449	9,880	3,675	4,040	3,806			
Trimble	6,811	6,594	5,121	329	577	456			
Union	15,513	14,646	11,066	2,716	3,163	2,574			
Warren	22,180	19,892	15,375	7,975	7,639	6,367	3		
Washington	11,526	11,988	10,354	2,096	2,430	2,110		1	
Wayne	12,221	11,613	9,927	631	899	675			
Wehster	15,225	12,580	9,582	1,971	1,666	1,355			
Whitley	16,821	11,752	8,140	760	237	138	9	11	
Wolfe	7,055	6,563	3,675	125	75	28			
Woodford	7,495	6,168	4,416	4,885	5,642	3,825			

LOUISIANA.

PARISHES.	554,712	454,954	362,065	562,893	483,655	364,210	682	1,337	610
The State									
Acadia	11,582			1,649					
Ascension	8,061	5,968	4,265	11,442	10,855	7,310	42	72	2
Assumption	10,647	8,938	6,247	8,966	8,067	6,984	16	5	3
Avoyelles	12,821	8,483	6,751	12,241	8,213	6,175	50	51	
Bienville	7,797	5,455	5,589	6,311	4,987	5,047			
Bossier	4,166	3,256	3,505	16,161	12,786	9,170	3	7	2
Caddo	7,983	6,921	5,913	23,561	19,368	15,799	11	7	
Calcasieu	16,792	9,919	5,171	3,330	2,407	1,457	144	158	105
Caldwell	2,682	2,870	2,596	3,131	2,896	2,224	1	1	
Cameron	2,387	2,087	1,249	441	324	342		5	
Carroll			2,380			7,718			12
Catahoula	6,990	5,724	4,381	4,978	4,527	4,083	34	26	11
Claiborne	9,750	8,541	9,630	13,559	10,295	10,608	3	1	2
Concordia	1,516	1,320	720	13,324	13,594	9,257	1		
De Soto	6,583	5,116	5,111	13,275	10,487	9,861	2		
East Baton Rouge	9,368	7,103	6,471	16,547	12,863	11,343	7		2
East Carroll	967	1,023		11,390	11,030		5	21	
East Feliciana	5,144	4,497	4,106	12,759	10,635	9,393			1
Franklin	2,836	2,701	2,233	4,064	3,793	2,844		1	
Grant	4,847	3,320	2,078	3,414	2,862	2,414	9	6	25

TABLE VIII.—LOUISIANA—CONTINUED.

PARISHES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
Iberia	10,400	8,100	4,531	10,597	8,575	4,510		1	1
Iberville	6,617	4,784	3,669	15,226	12,759	8,675	5	1	3
Jackson	4,816	2,925	4,203	2,637	2,403	3,443			
Jefferson	6,687	4,864	6,709	6,514	7,290	11,054	20	12	4
Lafayette	8,998	7,694	5,631	6,966	5,541	4,755	2		2
Lafourche	14,210	11,282	8,060	7,884	7,806	6,659	1	25	
Lincoln	8,442	6,177		6,311	4,898				
Livingston	4,875	4,265	3,085	894	993	933			
Madison	900	1,201	936	13,235	12,645	7,663			8
Morehouse	3,496	3,547	3,012	13,290	10,659	6,375			1
Natchitoches	10,233	7,638	7,312	15,674	12,020	10,929	29	49	24
Orleans	176,285	158,367	140,923	65,603	57,617	50,456	151	106	39
Ouachita	5,522	4,502	3,759	12,463	10,180	7,823		3	
Plaquemines	5,385	4,254	3,703	7,156	7,214	6,845		107	4
Point Coupee	4,622	4,785	3,752	14,991	12,999	9,220		1	
Rapides	11,778	9,512	7,742	15,847	13,942	10,267	17	109	6
Red River	3,526	2,507		7,791	6,066		1		
Riceland	2,980	3,161	2,405	7,250	5,279	2,705			
Sabine	7,304	5,486	4,592	2,075	1,847	1,847	11	11	17
Saint Bernard	2,325	2,104	1,640	1,990	2,288	1,913	2	13	
Saint Charles	1,979	1,401	897	5,758	5,746	3,963		14	7
Saint Helena	3,449	3,328	2,509	4,613	4,170	2,914			
Saint James	5,652	4,850	3,275	10,036	9,862	6,877	27	2	
Saint John the Baptist	4,674	3,855	2,715	6,611	5,792	4,044	41	39	3
Saint Landry	17,780	20,473	13,776	22,340	19,399	11,694	130	132	83
Saint Martin	6,988	5,783	4,286	7,883	6,876	5,064	13	4	20
Saint Mary	7,904	6,717	4,203	14,459	13,115	9,607	53	59	50
Saint Tammany	6,314	4,258	3,411	3,779	2,595	2,175	67	34	
Tangipahoa	7,886	5,608	4,934	4,764	4,014	2,994	15	16	
Tensas	1,111	1,571	1,400	15,533	16,237	11,018	3	7	1
Terre Bonne	10,315	8,613	6,080	9,797	9,111	6,172	55	233	199
Union	9,806	8,014	7,311	7,468	5,512	4,374			
Vermillion	11,322	6,771	3,480	2,912	1,957	1,047			1
Vernon	5,352	4,783		551	377				
Washington	4,667	3,475	2,301	2,030	1,712	930	3	3	
Webster	5,129	4,322		7,341	5,683		5		
West Baton Rouge	2,375	2,252	1,710	5,988	5,415	3,404			
West Carroll	1,427	1,339		2,321	1,437				
West Feliciana	2,271	2,287	1,583	12,791	10,522	8,915			1
Winn	6,060	4,797	4,044	1,022	1,047	909		2	1

MARYLAND.

COUNTIES.	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
The State	824,149	724,693	605,497	218,004	210,230	175,391	237	20	6
Allegany	40,096	36,463	37,370	1,470	1,549	1,166	5		
Anne Arundel	19,441	14,640	12,725	14,048	13,877	11,732	5		
Baltimore	62,540	72,766	55,024	10,369	10,565	8,363		5	
Baltimore city	366,920	273,584	227,794	67,326	53,716	39,568	193	13	2
Calvert	4,757	4,842	4,332	5,103	5,696	5,533			
Caroline	10,008	9,600	8,343	3,895	4,166	3,769			
Carroll	30,190	28,706	26,444	2,185	2,286	2,175	1		
Cecil	21,850	22,644	21,860	3,978	4,464	4,014	23		
Charles	6,975	7,700	6,418	8,215	10,848	9,318	1		2
Dorchester	16,035	14,634	11,902	8,808	8,476	7,556			
Frederick	42,865	42,962	39,990	6,646	7,520	7,572	1		1
Garrett	14,030	12,063		183	112				
Harford	22,416	21,385	17,750	6,577	6,667	4,855			
Howard	12,096	11,741	10,676	4,173	4,399	3,474			
Kent	10,416	10,400	9,370	7,055	7,205	7,732			
Montgomery	17,472	15,608	13,128	9,710	9,150	7,434	3	1	1
Prince George	14,832	13,955	11,358	11,245	12,486	9,780	3		
Queen Anne	11,816	12,067	9,579	6,045	7,189	6,592		1	
Saint Mary	8,060	8,244	7,218	7,759	8,690	7,726			
Somerset	14,502	12,974	10,916	9,653	8,694	7,274			
Talbot	12,148	11,736	9,471	7,587	7,329	6,666	1		
Washington	37,191	35,495	31,874	2,590	3,066	2,838	1		
Wicomico	14,600	12,943	11,396	5,330	5,073	4,406			
Worcester	12,893	12,522	10,550	6,854	7,017	5,809			

TABLE VIII.—MISSISSIPPI.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
The State	539,703	479,398	382,896	747,720	656,291	441,201	2,177	1,968	825
Adams	6,064	4,798	4,797	19,973	17,847	14,287	4	6	
Alcorn	9,543	9,893	7,663	3,571	4,409	2,768	1		
Amite	7,509	5,404	4,196	10,689	8,510	6,777			
Attala	12,666	11,653	8,828	9,623	8,260	5,948	24	75	
Benton	5,578	5,777		5,007	5,246				
Bolivar	3,230	2,694	1,900	26,734	15,958	7,816	16		16
Calhoun	11,188	10,191	8,561	3,590	3,300	2,000		1	
Carroll	8,075	7,831	9,497	10,698	9,961	11,559		3	
Chickasaw	8,455	7,696	9,839	11,436	10,299	10,069			
Choctaw	8,130	6,537	12,526	2,717	2,498	4,462		1	
Clallama	3,419	3,910	3,390	11,095	12,858	9,996	2		
Clarke	7,717	7,181	4,073	8,106	7,828	3,432	3	12	
Clay	5,552	5,255		13,054	12,110		1	2	
Cochama	2,162	2,412	1,763	16,161	11,155	5,381	19	1	
Copiah	14,692	13,101	10,217	15,630	14,442	10,390	1	9	1
Covington	5,305	4,034	3,106	2,984	1,958	1,647	10	1	
De Soto	6,862	7,581	14,276	17,319	15,343	17,745	6		
Franklin	5,454	4,852	3,698	4,964	4,871	3,800	6		
Greene	2,923	2,381	1,656	945	785	372	38	6	
Grenada	3,650	3,236	3,029	11,024	8,831	6,642		28	
Hancock	5,758	4,635	3,053	2,526	1,764	1,186	34	40	
Harrison	9,108	5,749	4,368	3,370	2,146	1,427	3		
Hinds	10,685	11,675	9,829	28,577	32,279	20,659	17	4	
Holmes	6,980	6,911	6,145	23,988	20,233	13,225	2	20	
Issaquena	692	826	741	11,623	9,174	6,146	3	4	
Itawamba	10,695	9,555	6,826	1,013	1,108	986			
Jackson	7,810	5,124	3,167	3,440	2,482	1,194	1	1	1
Jasper	7,318	6,244	5,801	7,288	5,631	4,898	179	251	185
Jefferson	3,542	4,260	3,215	15,463	13,051	10,633	2	3	
Jones	7,027	3,469	3,005	1,295	359		11		
Keppel	7,845	7,100	5,706	10,684	8,537	7,214	32	82	
Lafayette	11,595	11,385	10,819	8,958	10,286	7,983			
Lauderdale	14,509	9,959	7,051	15,134	11,538	6,411	18	4	
Lawrence	6,236	4,937	3,078	6,082	4,473	3,642		10	
Leake	9,325	8,164	5,491	5,043	4,660	3,005	435	382	
Lee	12,341	12,656	11,160	7,699	7,814	4,855			
Leflore	2,450	2,230		14,414	7,997		5	19	
Leflore	10,216	7,701	6,022	7,696	5,842	4,162		4	
Lowndes	5,940	5,588	7,480	21,105	22,656	23,022	2		
Madison	6,624	5,946	5,809	21,297	19,507	15,139		13	
Marion	6,478	4,460	2,562	3,054	2,451	1,640			
Marshall	9,533	10,992	12,917	16,508	18,338	16,499	2		
Monroe	11,930	10,551	8,631	18,792	18,091	14,000	8	1	
Montgomery	7,372	6,671	7,085	7,085	6,677		2		
Neshoba	8,320	6,555	5,419	2,175	1,768	1,703	651	418	317
Newton	10,082	8,428	6,386	6,192	4,686	3,386	351	322	295
Noxuba	4,615	5,392	5,107	22,723	24,572	15,798			
Oktibbeha	5,585	5,109	5,587	12,109	10,869	9,304			
Panola	9,064	9,521	8,169	17,913	18,830	12,585		1	
Pearl River	2,298			659					
Perry	4,669	2,357	1,971	1,887	1,070	723	38		
Pike	10,531	8,572	5,990	10,672	8,112	5,312		4	1
Pontotoc	10,529	9,609	9,513	4,411	4,249	3,012			
Prentiss	10,767	9,737	7,594	2,912	2,421	1,754			
Quitman	888	692		2,397	515		1		
Rankin	7,454	7,193	5,704	10,467	9,559	7,273	1		
Scott	6,917	6,633	4,680	4,700	4,132	3,167	123	80	
Sharkey	1,225	1,405		7,139	4,893		18	8	
Simpson	6,164	4,094	3,569	3,974	3,014	2,149			
Smith	8,889	6,452	5,415	1,746	1,636	1,711			
Sumner		7,239			2,295				
Stonewall	2,565	1,764	1,772	6,875	2,807	3,243	4		
Tallahatchie	4,974	4,168	3,215	9,387	6,757	4,637		1	
Tate	8,398	9,094		10,853	9,627		2		
Tippah	9,981	9,802	15,636	2,970	3,065	5,091			
Tishomingo	8,289	7,611	6,609	1,013	1,153	741			
Tunica	1,218	1,256	1,231	10,936	7,205	4,127	4		
Union	11,569	9,932		4,037	3,098				
Warren	8,643	8,717	7,907	24,516	22,516	18,862	5	5	
Washington	4,669	3,478	2,164	35,703	21,851	12,405	42	28	
Wayne	5,769	4,971	2,570	4,041	3,770	1,636	7		
Webster	9,034			3,026					
Wilkinson	3,864	3,570	2,098	13,727	14,243	10,007	1	2	
Winston	6,977	6,113	5,572	6,072	3,927	3,403	40	47	9
Yalobusha	7,618	7,533	6,202	9,011	8,116	7,052			
Yazoo	8,515	8,498	4,884	27,873	29,342	12,395	6	5	

TABLE VIII.—MISSOURI.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
The State	2,524,468	2,022,826	1,603,146	154,131	145,350	118,071	585	204	78
Adair	17,110	14,964	11,305	307	226	143			
Andrew	15,729	15,950	14,736	271	367	401		1	
Atchison	15,486	14,514	8,405	46	40	34	1	2	1
Audrain	20,211	17,887	11,237	1,832	1,844	1,070	1	1	
Barry	22,858	14,392	10,320	85	13	52			1
Barton	18,456	10,315	5,068	48	17	19			
Bates	31,799	25,129	15,840	423	252	120	1		
Benton	14,800	12,124	11,002	173	271	326		1	
Bollinger	13,089	11,104	8,116	38	26	46	4		
Boone	21,309	20,338	16,727	4,732	5,082	4,038	2	2	
Buchanan	65,980	46,063	33,155	4,109	3,726	1,953	11	3	1
Butler	9,396	5,871	4,275	596	140	21	2		2
Caldwell	7,717	13,233	11,106	435	413	284			
Callaway	23,536	19,239	15,768	4,562	4,431	3,434	3		
Camden	9,937	7,152	5,359	103	114	149			
Cape Girardeau	19,984	19,003	15,912	2,076	1,995	1,616			
Carroll	24,391	21,807	16,019	1,441	1,467	827			
Carter	5,792	2,157	1,425	7	11	30			
Cass	22,514	21,679	18,793	787	751	502		1	1
Cedar	15,481	10,595	9,363	139	146	111			
Chariton	23,704	21,234	16,336	3,549	3,990	2,800	1		
Christian	13,910	9,431	6,592	104	193	114	3	4	1
Clark	14,953	14,723	13,372	173	308	295			
Clay	18,495	14,059	13,718	1,357	1,512	1,816	4		
Clinton	16,022	15,098	13,380	1,116	975	683			
Cole	15,287	13,646	9,041	1,931	1,868	1,251		1	
Cooper	19,092	18,094	17,340	3,608	3,502	3,352	7		
Crawford	11,878	10,634	7,896	83	122	86			
Dade	17,230	12,309	8,479	295	248	201	1		
Dallas	12,592	9,174	8,294	55	89	89			
Davies	20,072	18,695	14,086	383	450	324	1		
De Kalb	14,419	13,202	9,736	119	132	122	1		
Dent	12,107	10,584	6,326	42	62	31			
Douglas	14,070	7,727	3,888	41	26	27			
Dunklin	14,924	9,440	5,816	161	161	166			
Franklin	26,211	24,457	27,925	1,844	2,077	2,173	1		
Gasconade	11,593	10,986	10,013	113	167	80			
Gentry	18,982	17,148	11,551	36	28	56			
Greene	45,112	25,993	19,393	3,498	2,799	2,156	6	9	
Grundy	17,628	14,986	10,452	246	199	115	2		
Harrison	20,976	20,231	14,625	56	73	10	1		
Henry	27,075	22,911	16,759	1,160	991	642		4	
Hickory	9,427	7,337	6,362	26	50	30			
Holt	15,328	15,277	11,468	141	232	184			
Howard	12,773	13,197	12,040	4,597	5,231	5,193	1		
Howell	18,422	8,723	4,193	196	91	24			1
Iron	8,790	7,783	5,926	320	460	352	3		
Jackson	144,961	72,440	49,810	15,339	9,850	5,223	210	35	8
Jasper	49,444	31,241	14,790	1,034	767	138	22	11	
Jefferson	21,310	17,731	14,617	1,173	1,005	763	1		
Johnson	26,280	26,153	23,189	1,851	2,019	1,458	1		1
Knox	13,262	12,819	10,774	239	228	200			
Laclede	14,209	11,047	9,218	492	477	162			
Lafayette	25,932	21,295	18,582	4,250	4,415	4,039	2		2
Lawrence	25,862	17,273	12,808	373	299	259	3	11	
Lewis	14,826	14,517	13,993	1,109	1,408	1,181			
Lincoln	16,251	15,280	13,972	2,095	2,146	1,987			1
Linn	23,292	19,177	15,158	827	839	742	2		
Livingston	19,765	19,024	15,774	903	1,172	956			
McDonald	11,260	7,894	5,189	3	12	37	20		
Macon	29,255	24,722	21,734	1,320	1,499	1,496		1	
Madison	9,025	8,567	5,688	243	306	159		3	2
Maries	8,695	7,292	5,894	6	12	22			
Marion	22,408	21,125	20,187	3,823	3,708	3,592	2	4	1
Mercer	14,497	14,572	11,404	84	101	93			
Miller	13,930	9,575	6,440	231	230	176	1		
Mississippi	8,003	7,116	4,063	2,130	2,154	919	1		
Moniteau	14,784	13,398	10,496	816	978	879			
Monroe	18,722	16,925	15,144	2,067	2,146	2,005	1		
Montgomery	15,167	14,332	9,466	1,683	1,917	939			
Morgan	11,895	9,716	8,127	416	416	397			
New Madrid	7,257	5,813	4,931	2,060	1,881	1,425			1
Newton	21,372	18,344	12,471	720	591	350	16	12	
Nodaway	30,778	29,432	24,663	134	109	87	2	3	1
Oregon	16,241	5,773	3,283	16	18	4			

TABLE VIII.—MISSOURI—CONTINUED.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
Adair	12,711	11,422	10,467	369	400	326		2	
Adair	9,771	5,604	3,351	24	13	12		1	
Adair	5,562	4,031	1,011	413	268	148			
Adair	12,729	11,424	9,477	508	471	400			
Adair	28,276	24,259	16,580	2,874	3,008	2,126	1	4	
Adair	12,344	12,065	10,212	291	503	291	1		
Adair	21,326	21,339	18,881	4,694	5,376	4,195	1		
Adair	15,024	15,794	16,160	1,222	1,630	1,192	2	2	
Adair	20,157	15,448	12,186	182	285	250		1	
Adair	9,364	7,190	4,689	23	60	25			
Adair	15,330	13,532	11,298	35	23	9			
Adair	11,152	10,627	9,255	1,142	1,211	1,255			
Adair	21,853	19,937	13,774	3,038	2,811	2,134	2	3	
Adair	22,421	18,451	16,867	1,789	1,739	1,633	5		
Adair	6,614	5,708	3,745	19	14	11			
Adair	8,331	5,367	3,165	1	10	10			
Adair	20,626	20,652	19,381	2,345	2,411	1,922	6	2	1
Adair	16,499	13,815	6,599	217	310	152	1		
Adair	9,299	9,832	7,653	582	558	431	2		
Adair	16,717	13,169	9,224	630	653	518			
Adair	32,775	28,008	324,760	3,531	3,880	26,387	1		42
Adair	423,879	328,191		27,683	22,256		208	71	
Adair	21,600	24,080	17,918	5,152	4,431	3,754	1		
Adair	11,245	10,461	8,806	4	9	14			
Adair	12,568	12,377	10,541	106	131	129			
Adair	10,729	8,036	6,091	499	550	326		1	
Adair	8,715	3,441	2,336	3		3			
Adair	14,883	13,089	9,540	759	931	671		4	8
Adair	17,191	13,306	8,465	136	35	70			
Adair	7,080	4,376	3,233	10	28	20			
Adair	18,944	16,486	11,865	56	83	42			
Adair	7,969	5,591	4,397	4	4	10		1	
Adair	19,336	12,177	9,523	10	29	95			
Adair	31,263	19,263	11,165	242	106	82			
Adair	9,169	9,852	8,931	744	954	741			1
Adair	12,345	11,858	10,748	808	1,038	971			
Adair	11,620	8,988	6,601	107	108	67			
Adair	14,969	11,927	10,185	172	247	248	6	1	1
Adair	8,737	8,202	5,004	1	1				
Adair	14,110	9,450	5,658	368	260	26	6	2	

NORTH CAROLINA.

The State	1,049,191	867,242	678,470	567,170	531,277	391,650	1,586	1,231	1,241
Alamance	12,670	9,907	8,234	5,601	4,613	3,640		3	
Alexander	8,582	7,458	6,034	848	897	834			
Alexander	6,088	4,967	3,301	453	519	290	2		
Alexander	10,439	8,790	6,350	9,987	9,204	6,078	1		
Ash	15,043	13,471	8,991	585	963	582		3	
Beaufort	11,765	10,022	8,379	9,367	7,452	4,632			
Bertie	7,778	6,815	5,513	11,388	9,581	7,437			
Bhaden	8,500	7,598	6,729	8,263	8,560	6,102			
Bhaden	6,497	5,337	4,448	4,863	4,052	3,306			
Brunswick	28,563	18,422	13,109	6,793	3,476	2,303		11	
Buncombe	12,332	10,088	7,463	2,605	2,721	2,314	2		
Burke	12,612	9,849	8,025	5,530	5,115	3,929		1	
Calhoun	10,707	8,691	7,096	1,589	1,599	1,380	2		
Caldwell	3,333	3,791	3,239	2,334	2,471	2,121		19	1
Camden	8,480	7,107	6,285	2,345	2,676	2,725		1	
Carteret	6,583	7,169	6,587	9,445	10,656	9,494			
Caswell	10,055	12,409	9,281	2,631	2,477	1,763			
Catawba	17,114	16,500	12,893	8,299	7,953	6,830			
Chatham	9,690	7,796	7,296	238	288	301	48	98	484
Cherokee	3,031	3,633	3,081	5,236	4,267	3,369			
Chowan	4,057	3,175	2,319	140	141	142			
Clay	17,298	13,760	10,633	3,096	2,871	2,063			
Columbus	11,829	8,926	5,526	6,027	5,513	2,948			
Crawford	7,054	6,664	8,400	13,479	10,061	12,116		1	
Cumberland	14,614	12,594	9,520	12,658	11,241	7,515	49	1	
Currituck	4,710	4,495	3,991	2,037	1,981	1,140			
Dare	3,359	2,875	2,401	409	368	377			
Davidson	18,137	16,341	13,868	3,555	3,902	3,546			
Davie	8,717	7,770	6,527	2,904	3,326	3,093			
Duplin	11,539	10,587	8,776	7,148	8,186	6,766	3		

TABLE VIII.—NORTH CAROLINA—CONTINUED.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
Durham	10,046			7,395					
Edgecombe	8,478	7,068	7,858	15,634	18,213	15,112	1		
Forsyth	10,392	13,441	10,716	9,040	4,629	2,334	2		
Franklin	10,668	9,476	6,633	10,422	11,353	7,501			
Gaston	12,021	10,188	8,430	4,841	4,066	4,172	2		
Gates	5,516	4,073	4,517	4,736	3,924	3,207			
Graham	3,127	2,123		25	23		161	180	
Granville	12,307	13,603	11,476	12,175	17,679	13,355	2	4	
Greene	5,244	4,652	4,166	4,795	5,385	4,521			
Guilford	10,692	10,885	15,656	8,353	6,700	6,080	7		
Halifax	9,467	9,137	6,418	10,440	21,162	13,960	1	1	
Harnett	9,368	7,002	5,857	4,301	3,770	3,018	31		
Haywood	12,824	9,787	7,466	5,222	4,484	3,515			
Henderson	11,210	8,893	6,498	1,379	1,388	1,208			
Hertford	5,857	5,122	4,321	7,994	6,721	4,952			
Hyde	4,953	4,424	4,007	3,950	3,341	2,378			
Iredell	19,373	16,752	12,288	6,063	5,913	4,643	26	10	
Jackson	8,671	6,591	5,698	5,28	4,375	2,274	313	377	711
Johnston	19,780	15,996	11,703	7,459	7,465	5,194			
Jones	3,843	3,212	2,346	3,560	4,279	2,656			
Lenoir	8,446	7,277	4,902	6,433	8,067	5,532			
Lincoln	10,002	8,180	6,814	2,584	2,881	2,759			
McDowell	9,091	7,939	5,820	1,848	1,897	1,772			
Macon	9,407	7,395	6,173	694	656	463	1	13	39
Madison	17,089	12,351	7,858	716	459	331			
Martin	7,768	6,661	5,064	7,453	6,479	4,583			
Mecklenburg	23,003	17,922	13,578	19,664	16,241	10,721	6	12	
Mitchell	12,233	8,932	4,492	573	563	243	1		
Montgomery	8,490	6,857	6,359	2,749	2,517	2,128			
Moore	13,816	11,485	9,021	6,649	5,332	3,019	14	4	
Nash	12,063	9,417	6,356	8,644	8,314	4,721			
New Hanover	10,012	8,159	11,779	13,983	13,217	16,199	1		
Northampton	8,932	7,987	6,239	12,310	12,045	8,519			
Onslow	7,282	6,690	5,173	3,021	3,229	2,396			
Orange	9,648	14,655	11,087	5,300	9,143	6,429			
Pamlico	4,738	4,207		2,408	2,116				
Pasquotank	4,156	4,855	4,180	5,591	5,514	3,951	1		
Pender	5,895	5,609		6,618	6,957		1	2	
Perquimans	4,087	4,795	3,947	4,606	4,671	3,938			
Person	8,193	7,206	6,066	6,958	6,513	5,104			
Pitt	13,052	10,704	8,862	12,466	11,088	8,414	1	2	
Polk	4,792	3,918	3,341	1,108	1,144	978	2		
Randolph	21,831	17,758	14,945	3,364	3,078	2,606			
Richmond	10,854	8,141	6,284	13,094	10,104	6,598			
Robeson	16,461	11,942	8,892	14,847	11,938	7,370	175		
Rockingham	15,098	12,431	9,493	10,263	9,313	6,215	2		
Rowan	17,102	13,621	11,503	7,020	6,329	5,307	1	5	
Rutherford	14,991	11,910	10,479	3,776	3,255	2,642	3	33	7
Sampson	15,877	13,347	9,953	9,219	9,540	6,483			
Stanly	10,598	9,166	7,026	1,538	1,339	1,289			
Stokes	14,345	11,730	8,600	2,854	3,623	2,608			
Surry	16,890	13,227	9,692	2,388	2,075	1,560	3		
Swain	5,613	3,234		253	109		711	441	
Transylvania	5,330	4,823	3,227	561	517	309			
Tyrrell	2,987	3,110	2,871	1,238	1,435	1,302			
Union	15,673	13,520	9,523	5,586	4,536	2,694			
Yancey	6,386			11,191			4		
Wake	25,887	24,289	19,426	23,316	23,650	16,184	4		7
Warren	5,824	6,386	5,276	13,536	16,233	12,492			
Washington	4,904	4,551	3,739	5,296	4,374	2,777			
Watauga	10,172	7,746	5,061	439	414	226			
Wayne	15,041	12,827	10,004	11,058	12,124	8,140	1		
Wilkes	20,555	17,257	13,877	2,120	1,924	1,662			
Wilson	10,813	8,655	7,185	7,830	7,409	5,073	1		
Yadkin	12,406	10,876	9,253	1,384	1,544	1,414			
Yancey	9,195	7,369	5,601	295	325	308			

TABLE VIII.—SOUTH CAROLINA.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
The State	458,454	391,105	289,067	602,503	604,332	415,814	192	140	125
Abbeville	15,120	13,172	10,016	31,727	27,637	20,213	7	6	
Adams	13,376	12,936		18,244	15,170		2	0	
Anderson	25,174	18,747	14,456	18,522	14,865	9,503			
Beaufort	14,010	13,853	13,578	30,602	26,003	22,145	1	1	
Blaine	2,663	2,442	5,309	31,553	27,732	29,050	3	2	
Charleston	7,661			47,760			1		
Cherokee	24,637	30,922	28,204	35,200	71,868	60,603	66	10	56
Chickamauga	8,443	7,635	6,290	18,217	15,517	12,513		1	2
Chickly	19,902	9,498	6,275	7,565	6,847	4,309	1		
Clarendon	6,015	6,282	4,600	10,318	12,968	9,366			12
Colleton	13,870	12,184	8,909	26,410	24,181	16,492	13	21	9
Darlington	11,659	12,929	10,097	17,474	21,556	16,140	1		
DeKalb	17,055	16,018	17,040	32,203	29,826	25,417	1		
Dorchester	7,051	6,885	5,787	21,548	20,880	14,101			29
Edgefield	10,400			14,627					
Florence	4,020	3,466	2,773	16,847	16,146	13,388		1	
Georgetown	27,371	22,983	15,121	16,936	14,511	7,141	3	2	
Green	6,807	6,286		13,737	12,451			2	
Greenville	13,639	10,632	7,486	5,617	4,942	3,245			
Hampton	8,400	7,892	3,809	13,921	13,046	7,945			
Horry	10,338	7,935	6,159	10,422	8,957	5,024	1	11	4
Jackson	13,972	11,756	9,904	18,538	17,688	12,632			
Jefferson	13,705	11,096	8,452	8,475	7,467	4,536	1	1	
Kershaw	14,434	15,881	11,428	15,524	18,226	10,732	18		
Lancaster	8,859	8,020	5,146	14,611	12,571	6,668		1	
Laurens	8,880	8,236	7,457	17,554	18,261	13,318			
Lexington	13,611	11,955	8,114	5,045	4,301	2,422	1		
Marion	15,585	12,942	5,700	33,808	28,453	11,156			
Mathews	12,194	10,673	7,730	4,195	3,716	2,538			1
Mecklenburg	11,825	9,185	7,842	24,994	19,388	15,177	2		6
Monroe	36,729	26,372	17,375	18,652	14,035	8,408	4	2	1
Muscle Shoals	17,717	9,979	7,463	31,884	27,658	17,805	4		
Newberry	10,874	10,516	8,718	14,489	13,551	10,530		13	
North	9,250	7,758	5,346	18,525	16,352	10,143	2		
Richland	18,638	14,633	12,114	20,733	16,620	12,167	60	60	5

TENNESSEE.

The State	1,332,071	1,138,831	936,119	434,300	403,151	322,331	217	377	70
Anderson	13,920	9,917	7,773	1,264	963	928	4		3
Bell	18,411	18,536	17,849	6,327	7,489	6,484	1		
Benton	10,609	9,147	7,732	621	633	462			
Bourbon	5,643	4,838	4,101	401	747	709		32	
Breathitt	15,954	14,273	13,781	1,632	1,705	1,456	3	7	
Bullitt	11,816	10,268	9,353	1,788	1,845	1,700	3	21	
Cadiz	12,005	9,571	7,017	681	432	428		2	
Cannon	11,250	10,636	9,575	947	1,116	927		47	
Carr	17,923	19,524	14,648	5,704	5,579	4,799			
Cass	12,688	9,385	7,336	701	628	573		6	
Chester	7,297	6,295	6,208	1,548	1,661	1,470			
Claiborne	7,228			1,841					
Cocke	14,577	12,584	8,683	526	789	758			
Cocke	6,880	6,588		389	399				
Cocke	15,178	13,361	11,184	1,339	1,447	1,274	6		
Cooke	12,127	11,164	8,736	1,609	1,723	1,591	1	7	
Crawford	10,908	10,493		4,238	3,612			4	
Cumberland	5,323	4,406	3,363	53	42	98			
Daviess	66,612	47,678	37,408	41,549	31,331	25,412	13	17	17
DeKalb	7,662	7,270	6,716	1,333	1,222	1,056			
DeKalb	14,462	13,660	10,321	1,188	1,151	1,104		2	
DeKalb	11,493	10,229	7,663	2,152	2,231	1,677			
DeKalb	15,113	11,206	10,813	4,762	3,912	2,803	3		
DeKalb	8,264	9,633	9,158	20,614	22,238	16,987			
DeKalb	5,180	5,838	4,647	46	103	170			
DeKalb	15,313	13,646	11,998	3,610	3,530	2,972	6	2	
DeKalb	20,386	23,540	18,801	9,473	9,145	6,865			
DeKalb	22,427	21,824	19,675	12,530	14,189	12,738		1	
DeKalb	12,478	11,555	11,301	716	829	1,030	2		
DeKalb	25,047	21,850	19,604	1,566	2,152	2,004	1	3	
DeKalb	5,909	4,154	3,113	436	438	137			
DeKalb	9,867	8,481		1,546	1,705		5		
DeKalb	35,760	16,239	13,053	17,704	7,399	4,188	18	4	
DeKalb	9,598	8,616	6,563	744	482	585			
DeKalb	12,082	13,313	11,218	8,947	9,608	6,854			2

TABLE VIII.—TENNESSEE—CONTINUED.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
Hardin	15,269	12,775	10,321	2,429	2,016	1,447			
Hawkins	19,826	17,956	13,947	2,390	2,641	1,889	30	2	1
Haywood	7,835	8,497	11,261	15,733	17,556	13,832		13	1
Henderson	13,894	14,414	11,809	2,442	3,016	2,408			
Henry	15,202	15,488	15,176	5,868	6,651	5,201			
Hickman	11,729	9,819	8,385	2,770	2,246	1,471			
Houston	4,553	3,487		837	808				
Humphreys	10,178	9,708	8,631	1,542	1,671	1,295			
Jackson	12,835	11,575	11,816	480	433	767	10		
James	4,362	4,478		634	667		7	42	
Jefferson	14,269	13,339	16,566	2,206	2,500	2,910			
Johnson	8,478	7,295	5,434	377	470	418	3	7	
Knox	48,422	31,880	24,150	11,127	7,234	4,810	3	1	
Lake	4,226	3,274	2,025	1,070	691	393	8		
Lauderdale	10,810	9,081	7,351	7,946	5,837	3,484	8	3	
Lawrence	11,492	9,599	7,636	794	784	565			
Lewis	2,436	1,963	1,798	219	218	188			
Lincoln	21,674	20,613	22,097	6,367	6,310	5,953	1	7	
Loudon	7,805	7,382		1,459	1,758		9	8	
McMinn	15,722	12,718	12,139	2,168	2,325	1,830		21	
McNairy	13,692	14,815	11,226	1,908	2,426	1,500			
Macon	10,095	8,429	6,842	782	890	791	1	2	
Madison	16,809	15,496	13,328	14,684	15,467	10,152	4	1	
Marion	12,977	9,541	5,926	2,434	1,369	915			
Marshall	14,365	14,429	11,822	4,638	4,830	4,385	3		
Maury	22,000	21,731	20,632	16,032	18,171	16,285			
Meigs	6,298	6,393	4,676	721	814	436	1	2	2
Monroe	14,046	12,391	11,339	1,272	1,292	1,235	11		
Montgomery	15,793	14,786	13,677	13,903	13,691	11,670	1	1	15
Moore	5,434	5,448		641	785				
Morgan	7,263	4,867	2,868	236	289	101			
Obion	22,936	18,841	13,402	4,325	4,069	2,182	2	2	
Overton	11,767	11,811	10,747	272	242	530			
Perry	7,114	6,609	6,463	671	665	472			
Pickett	4,725			41					
Polk	7,771	6,893	7,019	679	344	313	11	32	7
Putnam	13,045	10,903	8,168	638	598	530			
Rhea	10,871	6,300	5,097	1,771	773	631	5		
Roane	15,460	13,310	13,491	1,957	1,906	2,128	1	21	
Robertson	14,534	13,242	11,353	5,548	5,618	4,813	6	1	
Rutherford	20,595	20,248	16,807	14,502	16,493	16,478			4
Scott	9,423	8,864	4,015	371	157	39			
Sequitiche	2,918	2,500	2,160	76	56	175	3		
Sovier	18,134	14,848	10,495	627	683	633			
Shelby	61,021	31,508	39,737	61,674	43,903	36,616	45	19	1
Smith	15,406	14,215	12,458	2,997	3,578	3,536	1	6	
Stewart	10,015	9,933	9,319	2,177	2,757	2,706	1		
Sullivan	13,457	17,011	12,379	1,422	1,395	857		5	
Sumner	17,257	16,291	15,931	6,409	7,331	7,777	2		
Tipton	12,436	10,482	7,988	11,835	10,543	6,891		8	6
Triondale	4,618	4,565		1,832	2,141				
Union	4,388	3,526		231	119				
Union	11,351	10,042	7,391	107	218	244	1		
Van Buren	2,791	2,747	2,569	67	186	156	2		
Warren	12,391	11,801	10,753	2,022	2,336	1,955		2	6
Washington	18,389	14,664	14,794	1,961	1,577	1,614	1		
Wayne	10,609	10,232	9,316	871	1,069	893			
Weakley	24,230	20,135	16,856	4,625	4,413	3,899			
White	11,513	10,173	8,295	835	988	1,080		15	
Williamson	16,162	15,923	13,917	10,159	12,390	11,411	1		
Wilson	19,798	20,292	18,544	7,350	8,455	7,331			6

TEXAS.

The State	1,741,100	1,197,237	564,500	402,837	393,384	253,475	1,496	1,128	404
Anderson	11,359	3,619	4,793	9,563	7,775	4,436	1	1	
Andrews	21								
Angelina	5,705	4,405	3,243	600	824	742			
Araucosa	1,675	917		146	79		3		
Archer	2,001	689		10	7				
Armstrong	942	30						1	
Atascosa	6,154	3,938	2,733	284	379	199	21		22
Austin	12,685	10,490	8,513	5,273	3,939	6,574	1		
Bailey									
Bandera	3,667	2,127	631	125	31	18			

TABLE VIII.—TEXAS—CONTINUED.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
Bastrop	11,728	9,909	7,050	9,005	7,306	5,233	3		1
Baylor	2,587	709		6	6		2		
Bee	3,384	2,145	1,013	334	153	60	2		
Bell	30,583	18,783	8,667	2,703	1,734	1,104	11	1	
Bexar	43,448	26,003	13,739	5,716	3,867	2,303	102		1
Bexar district			1,014			63			
Blanco	4,403	3,415	1,143	227	168	44			
Borden	216	35		6					
Bosque	13,515	10,718	4,453	641	498	528	1	1	
Bowie	12,633	6,628	2,434	7,616	4,311	2,249	18	6	1
Brazoria	2,938	2,250	1,791	8,566	7,524	5,730	2		
Brazos	8,189	7,325	5,446	8,457	6,250	3,759	4	1	
Brewster	695			12			3		
Briscoe		12							
Brown	11,285	8,291	607	74	114	37		9	
Buchel	280			27					
Burleson	7,181	5,356	5,051	5,820	3,886	3,021		1	
Burnet	10,412	6,607	3,330	309	218	358			
Caldwell	10,870	7,723	4,011	4,806	4,634	2,531			
Calhoun	643	1,192	2,536	172	517	907			
Callahan	5,309	3,410		35	24			10	
Cameron	14,309	14,842	10,842	107	117	157	8		
Camp	3,337	3,085		3,287	2,815			1	
Carson	355			1					
Cass	14,035	10,274	5,496	8,510	6,444	3,379		6	
Castro	9								
Chambers	1,472	1,494	1,051	765	693	452	4		
Cherokee	15,210	11,014	7,794	7,769	5,708	3,285	6	1	
Childress	1,171	24		2	1		2		
Clay	7,395	5,019		107	26		1		
Cochran									
Coke	2,059								
Coleman	6,014	3,508	340	73	35	7	1		
Collin	34,183	24,003	12,348	2,550	1,979	1,653	3	1	12
Collingsworth	357	3			3				
Colorado	10,645	8,987	4,625	8,866	7,686	3,701	1		
Comal	6,199	5,276	4,906	199	270	377			
Comanche	16,314	8,529	977	79	79	24			
Concho	1,044	783		15	17				
Cook	23,232	19,560	4,827	1,441	814	471	23	17	17
Coryell	16,326	10,539	3,845	489	385	279	1		
Cottle	240	24							
Crane	15								
Crockett	194	127							
Crosby	345	81		1	1				
Dallam	75								
Dallas	55,710	28,530	11,197	11,269	4,947	2,109	63	11	8
Dawson	29	23			1				
Deaf Smith	179	37			1				
Delta	8,356	4,999		731	598				
Denton	19,550	17,071	6,751	1,737	1,070	500	2	2	
De Witt	10,282	7,144	4,086	4,024	2,938	1,757	1		
Dickens	295	28							
Dimmit	1,012	649	103	37	16	6			
Donley	1,013	159		39			4	1	
Duval	7,592	5,687	1,080	6	37	3		8	
Eastland	10,317	4,837	87	25	18	1	1		
Ector	224								
Edwards	1,361	265		1	1				
Ellis	28,366	18,755	6,008	3,406	2,539	1,506	2		
El Paso	14,911	3,598	3,229	403	47	306	361	200	136
Encinal	1,022	1,901	427		1				
Erath	20,774	11,539	1,712	741	257	89			
Falls	12,706	9,565	5,145	8,090	6,673	4,681		2	25
Fannin	34,398	22,081	10,721	4,301	3,416	2,484	10	4	2
Fayette	22,931	19,167	10,953	8,547	8,763	5,901	3	66	9
Fisher	2,982	135		14	1				
Floyd	529	3							
Foley	15			1					
Fort Bend	1,628	1,871	1,604	8,958	7,508	5,510		1	
Franklin	5,644	4,666		836	614		1		
Freestone	9,224	8,269	4,771	6,762	6,652	3,368	1		
Frio	2,989	2,065	291	123	66	15			
Gaines	68	8							
Galveston	24,396	18,464	12,053	7,038	5,651	3,236	42	16	1
Garza	14	35			1				
Gillespie	6,915	5,096	3,489	112	132	77	1		
Glasscock	208								
Goliad	4,257	4,166	2,751	1,653	1,060	876			1
Gonzales	12,079	9,974	5,269	5,936	4,861	3,670	1	5	12

TABLE VIII.—TEXAS—CONTINUED.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
Gray	202	55		1	1				
Grayson	46,399	33,549	12,237	6,769	4,548	2,145	43	11	6
Gregg	3,979	3,817		5,422	4,711		1	2	
Grimes	9,588	8,323	5,294	11,724	10,276	7,921		4	3
Guadalupe	10,740	8,747	4,748	4,475	3,455	2,534	2		
Hale	719			2					
Hall	702	35		1	1				
Hamilton	9,266	6,341	715	13	24	17			
Hansford	133	18							1
Hardeman	3,880	49		21	1		3		
Hardin	2,983	1,634	1,218	973	236	242			
Harris	23,622	17,160	10,865	13,613	10,816	6,500	14	0	1
Harrison	8,405	7,976	4,310	18,313	17,196	8,931	3	5	
Hartley	251	100		1					
Haskell	1,660	46		6	2				
Hays	9,112	6,076	2,871	2,213	1,475	1,217	27	4	
Hemphill	503	146		14	3		2		
Henderson	9,277	7,641	5,132	3,005	2,094	1,654	3		
Hidalgo	6,453	4,233	2,345	80	114	41	1		1
Hill	25,420	15,256	6,647	2,149	1,298	806	5		
Hookley									
Hood	7,290	5,927	2,477	281	198	97	1		11
Hopkins	17,716	13,306	11,030	2,835	2,153	1,620	21	2	1
Houston	10,861	9,465	4,605	8,419	7,233	3,542		4	
Howard	1,163	48		35	2		12		
Hunt	28,924	16,015	9,213	2,946	1,211	1,078	15	4	
Hutchinson	56	50		2					
Trion	867			3					
Jack	9,644	6,508	620	96	118	72			2
Jackson	1,457	1,310	1,114	1,824	1,412	1,164		1	
Jasper	3,179	3,241	2,459	2,413	2,538	1,759			
Jeff Davis	1,344			45			5		
Jefferson	3,421	2,290	1,408	2,235	1,199	498	1		
Johnson	21,449	17,337	4,639	862	574	279	2		5
Jones	3,790	542		7	4				
Karnes	3,098	2,780	1,426	539	489	279		1	
Kaufman	18,384	13,471	6,055	3,211	1,974	838	3	3	2
Kendall	3,588	2,588	1,435	221	175	101			
Kent	324	92							
Kerr	4,345	2,075	952	99	92	90	1	1	
Kimble									
King	2,228	1,335	72	4	8		2		
Kinney	172	39		1	1				
Knox	3,525	4,006	785	255	475	418	1	6	1
Lamar	1,133	74		1	3				
Lamb	27,820	20,445	11,365	9,433	6,729	4,410	43	19	15
Lampasas	4								
La Salle	7,297	5,248	1,258	268	172	86		1	
Lavaca	2,092	775	68	77	14	1			
Lee	17,092	10,221	6,461	4,283	3,420	2,707	2		
Leon	8,820	6,981		3,132	1,950				
Liberty	8,361	7,707	3,815	5,480	5,102	2,708		8	
Limestone	2,497	2,565	2,415	1,730	2,433	1,975	3	1	24
Lipscomb	17,199	13,075	6,682	4,477	3,171	1,919	2		10
Live Oak	632	67		2	2				
Llano	1,996	1,918	824	59	76	28			
Loving	6,707	4,896	1,361	51	66	18	1		
Lubbock	3								
Lynn	31	25							
McCulloch	21	9		2					
McLennan	3,185	1,511	171	20	22	2			
McMullen	28,682	19,276	8,861	10,509	7,643	4,627	13	15	12
Madison	990	654	218	48	47	12			
Marion	6,430	3,693	2,591	2,080	1,702	1,470	2		
Martin	3,617	3,759	4,200	7,233	7,210	4,362	12	14	
Mason	264	12							
Matagorda	5,123	2,614	650	46	41	26			2
Maverick	1,310	1,416	1,254	2,675	2,524	2,120			3
Medina	3,541	2,873	1,670	148	94	281	9		
Merand	5,438	4,209	1,986	290	277	92	2	6	
Meridian	1,181	1,202	295	26	37	372			
Midland									
Milan	1,028			3			2		
Mills	18,520	14,723	6,005	6,237	3,934	2,977	16	2	2
Mitchell	5,406			73			1		
Montague	1,948	112		101	5		10		
Montgomery	18,762	11,210	861	98	47	24	3		5
Moore									
Morris	6,205	4,926	3,131	5,559	5,220	3,351	1	8	1
Motley	15								
Murray	3,993	2,988		2,615	2,043		2	1	
Nacogdoches	136	24		3					
	11,683	8,560	6,307	4,289	3,040	3,275	12		82

TABLE VIII.—TEXAS—CONTINUED.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
Navarro	19,986	16,356	6,034	6,383	5,344	2,245	4	2	
Newton	3,073	2,852	1,356	1,577	1,507	831			
Nolan	1,540	635		32	5		1		
Nueces	7,379	7,044	3,643	712	629	332	2		
Ochiltree	197			1					
Oldham	268	287		2					
Orange	3,946	2,475	1,005	820	463	250	4		
Palo Pinto	8,229	5,797		91	85			3	
Panola	7,935	7,284	6,392	6,393	4,924	3,727		11	
Parker	20,999	15,250	3,893	681	615	293	2	5	
Farmer	7								
Pecos	1,309	1,680		6	127		11		
Polk	6,207	4,342	4,408	3,902	2,011	4,298	223	236	1
Pottor	830	26		14	2		5		
Presidio	1,666	2,444	1,147	28	429	489	4		
Rains	3,498	2,785		411	250				
Randall	187	8							
Red River	14,810	10,912	6,505	6,641	6,242	4,148	1	40	
Reeves	1,223			7			17		
Refugio	846	1,249	2,078	393	336	246			
Roberts	324	32		2					
Robertson	12,328	11,336	5,457	14,153	10,925	4,530	25	72	3
Rockwall	5,755	2,898		217	83			3	
Runnels	3,138	967		44	13				
Rusk	10,909	10,807	9,201	7,041	8,169	7,715	9	10	
Sabine	3,881	3,168	2,140	1,088	993	1,107			
San Augustine	4,485	3,169	2,231	2,203	1,915	1,904			1
San Jacinto	3,009	2,851		4,347	3,293		4	42	
San Patricio	1,288	636	538	24	74	64			
San Saba	6,567	5,183	1,281	54	140	144		1	
Schleicher	136			2			17		
Scurry	1,413	94		2	8				
Shackelford	1,841	1,781	400	171	135	55		121	
Shelby	11,379	7,369	3,977	2,989	2,154	1,755			
Sherman	70			1					
Smith	15,557	11,506	9,401	12,767	10,357	7,131			
Somervell	8,405	2,621		6	24			4	
Starr	10,045	8,093	4,136	7	211	18			
Stephens	4,920	4,700	306	6	25	24			
Stonewall	1,023	91			10		1	3	
Sutton	657						1		
Swisher	109	4							
Tarrant	36,777	22,488	5,083	4,316	2,169	706	49	23	
Taylor	6,744	1,728		185	8		17		
Terry	21								
Throckmorton	891	609		11	12				
Titus	6,391	4,609	8,519	1,799	1,346	2,818		4	2
Tom Green	4,949	2,966		195	645		8	4	
Travis	26,736	18,410	8,505	10,274	8,599	4,647	9	19	1
Trinity	5,730	3,763	3,056	1,913	1,102	1,084	5		1
Tyler	8,458	4,323	3,538	2,410	1,502	1,472	9		
Upshur	8,728	6,884	7,172	3,967	3,381	4,867		1	
Upton	51			1					
Uvalde	3,721	2,478	778	83	63	73			
Val Verde	2,762			104			8		
Van Zandt	15,154	11,456	5,812	1,071	1,163	682			
Victoria	5,159	3,883	3,092	3,577	2,406	1,708	1		
Walker	5,603	5,267	3,951	7,271	6,766	5,823		1	2
Walker	4,148	3,192		6,740	5,830			2	
Ward	75			2					
Washington	13,770	12,845	10,863	15,389	14,719	12,241	2	1	
Webb	16,313	5,089	2,013	248	184	2	3		
Wharton	1,460	917	514	6,122	3,631	2,910	2	1	2
Wheeler	762	477		15	35		1		
Wichita	4,701	416		128	17		2		
Wilbarger	7,052	126		31			9		
Williamson	23,087	13,520	5,563	2,780	1,631	801	11	4	4
Wilson	9,569	6,197	2,093	1,086	921	463			
Winkler	18								
Wise	23,961	16,436	1,399	171	165	51	2		
Wood	10,647	8,653	5,047	3,282	2,558	1,247	3	1	
Yoakum	4								
Young	5,033	4,709	131	16	17	4			
Zapata	3,562	3,620	1,488		7			9	
Zavalla	1,094	400		3	10	4			

TABLE VIII.—VIRGINIA.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
The State.....	1,014,680	860,858	712,089	640,807	631,616	512,841	433	91	233
Accomac.....	17,403	15,015	12,567	9,814	9,303	7,842			
Albemarle.....	18,133	15,959	12,550	14,245	16,669	14,594	1		
Alexandria.....	11,266	9,972	9,444	7,331	7,574	7,310			1
Alleghany.....	6,988	4,454	3,095	2,300	1,132	579			
Amelia.....	2,979	3,037	3,655	6,089	7,340	6,823			
Amherst.....	9,707	10,001	8,184	7,752	8,702	6,704	2	6	12
Appomattox.....	5,214	5,153	4,414	4,375	4,927	4,536			
Augusta.....	28,478	23,393	22,026	8,526	9,310	6,797	1	7	
Bath.....	3,812	3,521	2,906	775	961	889			
Bedford.....	19,730	18,528	14,557	11,483	12,677	10,770			
Bland.....	4,886	4,750	3,783	243	254	217			
Botetourt.....	11,067	10,169	8,166	8,787	4,660	3,163			
Brunswick.....	6,330	6,022	4,525	10,615	10,085	8,002			
Buchanan.....	5,845	5,661	3,730	22	33	47			
Buckingham.....	2,977	6,707	5,660	7,626	8,773	7,711			
Campbell.....	21,094	17,297	14,041	10,989	18,053	14,343	4		
Caroline.....	7,288	7,606	7,077	9,394	9,028	8,038	1	9	13
Carroll.....	15,121	12,977	8,819	366	340	328	10		
Charles City.....	1,342	1,761	1,822	3,724	3,761	3,153			
Charlotte.....	5,714	5,704	4,900	9,363	10,949	9,613			
Chesterfield.....	15,254	13,564	9,730	10,955	11,521	8,733	2		7
Clarke.....	5,608	5,145	4,511	2,407	2,637	2,159	1		
Craig.....	3,637	3,558	2,712	148	240	230			
Culpeper.....	7,074	6,785	6,058	6,159	6,623	6,169			
Cumberland.....	2,895	3,123	2,709	6,877	7,417	5,433			
Dickinson.....	5,651			26					
Dinwiddie.....	15,413	14,437	13,017	20,780	18,428	17,604	2	5	21
Elizabeth City.....	8,235	4,156	2,832	7,817	6,531	5,471	110	2	
Essex.....	3,501	3,493	3,277	6,545	7,569	6,450	1		
Fairfax.....	11,519	10,701	8,667	5,136	5,264	4,284			1
Fauquier.....	14,613	13,688	11,834	7,977	9,305	7,856			
Floyd.....	13,183	11,981	8,827	1,210	1,274	907	12		
Flovanna.....	5,026	5,512	4,778	4,482	5,299	5,097			
Franklin.....	18,675	17,069	12,258	6,310	8,015	6,936			
Frederick.....	16,618	14,997	13,863	2,262	2,556	2,733			
Giles.....	8,233	7,685	5,272	857	1,100	598			5
Gloucester.....	5,376	5,342	4,782	6,277	6,533	5,429		1	
Goochland.....	4,069	4,058	3,711	5,850	6,234	6,051			1
Grayson.....	13,474	12,071	8,833	919	907	764	1		
Greene.....	4,070	4,005	3,182	1,540	1,825	1,452			
Greensville.....	2,911	2,757	2,155	5,319	5,650	4,297			
Halifax.....	14,891	13,293	11,562	10,533	20,295	10,260			
Hanover.....	9,172	9,294	7,803	8,224	9,282	8,562	6	12	
Henrico.....	59,435	44,822	35,148	43,938	37,878	31,631	21	3	
Henry.....	9,856	8,614	6,722	8,362	7,395	6,581			
Highland.....	4,930	4,715	3,803	422	449	348			
Isle of Wight.....	6,190	6,010	4,874	5,183	4,555	3,440		7	
James City.....	2,295	2,227	1,085	3,348	3,105	2,440			
King and Queen.....	4,144	4,424	4,221	5,525	6,078	5,488			
King George.....	3,416	3,192	2,927	3,225	3,235	2,815			
King William.....	3,727	3,233	2,943	5,741	5,464	4,455	137	4	117
Laurens.....	3,133	2,926	2,198	4,058	3,534	3,157			
Lee.....	16,987	14,192	12,263	1,228	922	1,006	1	2	
Loudoun.....	16,537	16,391	15,238	6,737	7,243	6,991			
Louisa.....	7,175	7,409	6,269	9,822	11,531	10,063		2	
Lunenburg.....	4,644	4,011	4,344	6,728	6,924	6,050			
Madison.....	6,212	6,006	4,950	4,013	4,556	3,711			
Mathews.....	5,418	5,012	4,104	2,169	2,459	2,093			
Mecklenburg.....	9,192	8,222	7,162	10,167	16,388	14,156			
Middlesex.....	3,108	2,618	2,450	4,350	8,634	2,522			
Montgomery.....	14,171	12,466	9,674	3,571	4,227	2,882			
Nansemond.....	8,866	7,728	6,050	10,824	8,175	5,517	2		
Nelson.....	9,006	9,028	7,580	6,336	7,508	6,312			
New Kent.....	1,953	2,275	2,005	3,548	3,232	2,301	10	8	15
Norfolk.....	37,294	29,197	24,380	39,681	29,453	22,320	63	7	2
Northampton.....	4,704	3,889	3,198	5,608	5,263	4,848	1		
Northumberland.....	4,723	4,444	3,608	3,162	3,483	3,054			1
Nottoway.....	3,941	3,012	2,241	7,641	8,144	7,050			
Orange.....	6,548	6,210	4,938	6,266	6,842	5,458			
Page.....	11,371	8,646	7,476	1,721	1,110	986			
Patrick.....	12,039	10,090	7,836	2,108	2,734	2,325			
Pittsylvania.....	30,712	25,389	15,259	29,226	27,200	19,084	3		
Powhatan.....	2,343	2,726	2,552	4,448	5,091	5,115			
Prince Edward.....	4,750	4,751	4,106	9,944	9,914	7,898			
Prince George.....	2,898	3,255	2,774	5,166	6,799	5,046	8		

TABLE VIII.—VIRGINIA—CONTINUED.

COUNTIES.	WHITE.			COLORED.			ALL OTHERS.		
	1890.	1880.	1870.	1890.	1880.	1870.	1890.	1880.	1870.
Princess Anne	4,964	5,129	4,309	4,546	4,262	3,902		3	2
Prince William	7,170	6,580	5,691	2,036	2,600	1,813			
Pulaski	9,646	9,303	4,729	3,144	2,452	1,800			
Rappahannock	5,834	5,765	5,195	2,844	3,536	3,066			
Richmond	3,991	3,806	3,475	3,155	3,389	3,028			
Roanoke	21,037	8,273	0,218	9,049	4,828	3,132	15	4	
Rockbridge	17,893	14,600	12,162	5,169	5,343	3,890			6
Rockingham	23,477	26,133	21,162	2,822	3,433	2,516		1	
Russell	14,000	12,634	9,936	1,217	1,272	1,167			
Scott	20,649	16,537	12,512	1,045	676	524			
Shenandoah	18,811	17,198	14,290	860	1,006	676			
Smyth	12,116	10,520	7,654	1,244	1,640	1,244			
Southampton	8,404	7,447	5,468	11,611	10,565	6,795	3		22
Spottsylvania	8,091	8,422	7,099	6,142	6,406	4,659			
Stafford	5,875	5,558	4,935	1,487	1,653	1,485			
Surry	3,179	2,832	2,393	5,077	4,559	3,192			
Sussex	3,510	3,301	2,962	7,590	6,701	4,923			
Tazewell	16,393	10,947	9,193	3,506	1,914	1,598			
Warren	6,787	5,958	4,611	1,513	1,441	1,105			
Warwick	2,773	779	620	3,877	1,479	1,052			
Washington	25,187	21,113	14,156	3,825	4,086	2,653	8	4	7
Westmoreland	3,636	3,746	3,531	4,763	5,100	4,151			
Wise	8,706	7,671	4,717	549	101	68			
Wythe	14,820	11,464	0,269	3,192	2,850	2,342	1	4	
York	3,172	2,837	2,507	4,424	4,512	4,691			

WEST VIRGINIA.

The State	720,262	592,537	424,033	33,508	25,886	17,980	24	34	1
Barbour	12,135	11,413	9,926	507	457	386			
Berkeley	16,990	15,462	13,228	1,711	1,928	1,672	1		
Boone	6,713	5,635	4,400	172	189	153			
Braxton	13,702	9,683	6,393	136	104	87			
Brooke	6,540	5,928	5,367	110	85	97	1		
Cabell	22,106	12,842	6,306	1,488	902	123	1		
Calhoun	8,068	5,998	2,931	87	74	8			
Clay	4,658	3,400	2,192	1		4			
Doddridge	12,048	10,498	7,041	135	54	35			
Fayette	17,426	10,438	6,529	3,116	1,122	118			
Gilmer	9,685	7,061	4,311	61	47	27			
Grant	6,378	5,038	4,136	424	503	331		1	
Greenbrier	16,015	13,078	10,314	2,019	1,981	1,103		1	
Hampshire	10,837	9,714	7,003	582	652	640			
Hancock	6,393	4,854	4,336	20	24	27	1	4	
Hardy	6,964	6,042	4,902	603	752	610			
Harrison	21,076	19,292	16,058	842	889	635	1		1
Jackson	16,910	15,200	10,242	111	103	58			
Jefferson	11,392	10,958	9,731	4,161	4,046	3,488		2	
Kanawha	30,323	20,596	20,111	3,433	2,870	2,238			
Lewis	15,040	12,943	9,970	248	323	196	7	3	
Lincoln	11,026	8,687	5,017	220	62	36			
Logan	10,413	7,220	5,022	688	109	102			
McDowell	5,693	5,071	1,952	1,607	3				
Marion	20,557	17,043	12,020	164	155	78			
Marshall	20,493	18,607	14,821	241	223	120	1	10	
Mason	22,064	21,431	15,444	790	859	534		3	
Mercer	13,946	7,101	6,070	2,050	365	394			
Mineral	11,591	8,141	5,954	494	489	378			
Monongalia	15,440	14,668	13,316	265	317	231			
Monroe	11,442	10,372	10,121	987	1,129	1,003			
Morgan	6,470	5,580	4,189	274	197	116			
Nicholas	9,288	7,165	4,427	21	58	31			
Ohio	40,401	36,577	28,387	1,149	870	444	7	10	
Pendleton	8,584	7,923	6,361	127	99	94			
Pleasants	7,526	6,230	2,966	13	26	16			
Pocahontas	6,442	5,257	3,810	372	334	250			
Preston	20,227	18,885	14,437	128	206	118			
Putnam	14,092	11,020	7,534	250	355	200			
Raleigh	9,512	7,296	5,657	85	71	16			
Randolph	11,375	7,990	5,400	258	112	103			
Ritchie	16,583	13,410	8,992	38	64	23			
Roane	15,273	12,145	7,209	30	39				
Summers	11,083	8,262		1,134	771				
Taylor	11,758	11,056	9,024	389	399	343			

[7-010]



CENSUS BULLETIN.

No. 49.

WASHINGTON, D. C.

April 14, 1891.

MINES AND MINING.

PRECIOUS STONES AND DIAMOND CUTTING.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,

WASHINGTON, D. C., April 6, 1891.

The following bulletin in relation to precious and ornamental stones and diamond cutting has been prepared by Mr. GEORGE F. KUNZ, special agent, under the supervision of Dr. DAVID T. DAY, special agent in charge of the Division of Mines and Mining of the Census Office. A description of the discoveries of precious stones in the United States and statistics relating to mineral specimens sold to museums and for private collections and other purposes are given, with an account of the diamond-cutting industry, production of precious stones, ornamental minerals, etc. This important field has never been covered by any preceding census, and although the subject is treated of within the widest limits of a bulletin, it is but a summary of the facts which will appear in more complete and extended form in the forthcoming reports.

Superintendent of Census.

PRECIOUS AND ORNAMENTAL STONES AND DIAMOND CUTTING.

BY GEORGE FREDERICK KUNZ.

The statistics of this report are divided into two sections: First, the discoveries and finds of precious stones in the United States and the mineral specimens sold for museums and private collections or for bric-a-brac purposes; second, the diamond-cutting industry.

DISCOVERIES OF PRECIOUS STONES.

Up to the present time there has been very little mining for precious or semi-precious stones in the United States, and then only at irregular periods. It has been carried on during the past few years at Paris, Maine; near Los Cerrillos, New Mexico; in Alexander county, North Carolina, from 1881 until 1888, and on the Missouri river near Helena, Montana, since the beginning of 1890. True beryls and garnets have been frequently found as a by-product in the mining of mica, especially in Virginia and North Carolina. Some gems, such as the chlorastrolite, thomsonite, and agates of Lake Superior, are gathered on beaches, where they have fallen from rock which has gradually disintegrated by weathering and wave action.

DIAMOND.—A very limited number of diamonds have been found in the United States. They are met with in well-defined districts of California, North Carolina, Georgia, and recently in Wisconsin, but up to the present time the discoveries have been rare and purely accidental.

SAPPHIRE.—Of the corundum gems (sapphire, ruby, and other colored varieties) no sapphires of fine blue color and no rubies of fine red color have been found. The only locality which has been at all prolific is the placer ground between Ruby and Eldorado bars, on the Missouri river, sixteen miles east of Helena, Montana. Here sapphires are found in glacial auriferous gravels while sluicing for gold, and until now have been considered only a by-product. Up to the present time they have never been systematically mined. In 1889 one company took the option on four thousand acres of the river banks, and several smaller companies have since been formed with a view of mining for these gems alone or in connection with gold. The colors of the gems obtained, although beautiful and interesting, are not the standard blue or red shades generally demanded by the public.

At Corundum hill, Macon county, North Carolina, about one hundred gems have been found during the last twenty years, some of good blue color and some of good red color, but none exceeding \$100 in value, and none within the past ten years.

BERYL GEMS.—Of the beryl gems (emerald, aquamarine, and yellow beryl) the emerald has been mined to some extent at Stony Point, in Alexander county, North Carolina, and has also been obtained at two other places in the county. Nearly everything found has come from the Emerald and Hiddenite mines, where during the past decade emeralds have been mined and cut into gems to the value of \$1,000, and also sold as mineralogical specimens to the value of \$3,000; lithia emerald, or hiddenite, to be cut into gems, \$8,500, and for mineralogical specimens, \$1,500; rutile, cut and sold as gems, \$150, and as specimens, \$50, and beryl, cut and sold as gems, \$50.

At an altitude of 14,000 feet, on Mount Antero, Colorado, during the last three years, material has been found which has afforded \$1,000 worth of cut beryls. At Stoneham, Maine, about \$1,500 worth of fine aquamarine has been found, which was cut into gems.

At New Milford, Connecticut, a property was extensively worked from October, 1885, to May, 1886, for mica and beryl. The beryls were yellow, green, blue, and white in color, the former being sold under the name of "golden beryl." No work has been done at the mine since then. In 1886 and 1887 there were about four thousand stones cut and sold for some \$15,000, the cutting of which cost about \$3,000.

TURQUOISE.—This mineral, which was worked by the Aztecs before the advent of the Spaniards and since then by the Pueblo Indians and largely used by them for ornament and as an article of exchange, is now systematically mined near Los Cerrillos, New Mexico. Its color is blue, and its hardness is fully equal to that of the Persian, or slightly greater, owing to impurities, but it lacks the softness of color belonging to the Persian turquoise.

From time immemorial this material has been rudely mined by the Indians. Their method is to pour cold water on the rocks after previously heating them by fires built against them. This process generally deteriorates the color of the stone to some extent, tending to change it to a green. The Indians barter turquoise with the Navajo, Apache, Zuni, San Felipe, and other New Mexican tribes for their baskets, blankets, silver ornaments, and ponies.

GARNET AND OLIVINE (PERIDOT).—The finest garnets and nearly all the peridots found in the United States are obtained in the Navajo Nation, in the northwestern part of New Mexico and the northeastern part of Arizona, where they are collected from ant hills and scorpion nests by Indians and by the soldiers stationed at adjacent forts. Generally these gems are traded for stores to the Indians at Gallup, Fort Defiance, Fort Wingate, etc., who in turn send them to large cities in the east in parcels weighing from half an ounce to thirty or forty pounds each. These garnets, which are locally known as Arizona and New Mexico rubies, are the finest in the world, rivaling those from the Cape of Good Hope. Fine gems weighing from two to three carats each and upward when cut are not uncommon. The peridots found associated with garnets are generally four or five times as large, and from their pitted and irregular appearance have been called "Job's tears." They can be cut into gems weighing three or four carats each, but do not approach those from the Levant either in size or color.

GOLD QUARTZ.—Since the discovery of gold in California compact gold quartz has been extensively used in the manufacture of jewelry, at one time to the amount of \$100,000 per annum. At present, however, the demand has so much decreased that only from five to ten thousand dollars' worth is annually used for this purpose.

In addition to the minerals used for cabinet specimens, etc., there is a great demand for making clocks, inkstands, and other objects.

QUARTZ.—During the year 1887 about half a ton of rock crystal, in pieces weighing from a few pounds up to one hundred pounds each, was found in decomposing granite in Chestnut Hill township, Ashe county, North Carolina. One mass of twenty and one-half pounds was absolutely pellucid, and more or less of the material was used for art purposes. This lot of crystal was valued at \$1,000.

In Arkansas, especially in Garland and Montgomery counties, rock crystals are found lining cavities of variable size, and in one instance thirty tons of crystals were found in a single cavity. These crystals are mined by the farmers in their spare time and sold in the streets of Hot Springs, their value amounting to some \$10,000 annually. Several thousand dollars' worth are cut from quartz into charms and faceted stones, although ten times that amount of paste or imitation diamonds are sold as Arkansas crystals.

Rose quartz is found in the granitic veins of Oxford county, Maine, and in 1887, 1888, and 1889 probably \$500 worth of this material was procured and worked into small spheres, dishes, charms, and other ornamental objects.

The well-known agatized and jasperized wood of Arizona is so much richer in color than that obtained from any other known locality that, since the problem of cutting and polishing the large sections used for table tops and other ornamental purposes was solved, fully \$50,000 worth of the rough material has been gathered and over \$100,000 worth of it has been cut and polished. This wood, which was a very prominent feature at the Paris Exposition, promises to become one of our richest ornamental materials.

Chlorastrolite in pebbles is principally found on the inside and outside shores of Rock Harbor,

a harbor about eight miles in length on the east end of Isle Royale, Lake Superior, where they occur from the size of a pin head to, rarely, the size of a pigeon's egg. When larger than a pea they frequently are very poor in form or are hollow in fact, and unfit for cutting into gems. They are collected in a desultory manner, and are sold by jewelers of Duluth, Petoskey, and other cities, principally to visitors. The annual sale ranges from \$200 to \$1,000.

Thomsonite in pebbles occurs with the chlorastrolite at Isle Royale, but finer stones are found on the beach at Grand Marais, Cook county, Minnesota. Like the chlorastrolites, they result from the weathering of the amygdaloid rock, in which they occur as small nodules, and in the same manner are sold by jewelers in the cities bordering on Lake Superior to the extent of \$200 to \$1,000 worth annually.

PRODUCTION OF PRECIOUS STONES, ORNAMENTAL MINERALS, ETC., IN 1889.

NAMES OF GEMS OR PRECIOUS STONES.	Value of stones before cutting.	Value of stones after cutting into gems for ornamental purposes.	Value of stones sold as specimens and curiosities, occasionally polished to beautify or show the structure.	Total value.	NAMES OF GEMS OR PRECIOUS STONES.	Value of stones before cutting.	Value of stones after cutting into gems for ornamental purposes.	Value of stones sold as specimens and curiosities, occasionally polished to beautify or show the structure.	Total value.
Total		\$107,645	\$81,162	\$188,807	Agatized and jasperized wood.	\$42,725	\$53,000	\$175	\$53,175
Sapphire	\$2,600	6,725	6,725	6,725	Banded and moss jasper.....		80	550	630
Emerald		300	150	450	Amazon stone.....			500	500
Aquamarine	225	597	150	747	Pyrite.....	100	500	1,500	2,000
Phenacite.....			200	200	Chlorastrolite.....	200	300	200	500
Topaz.....	100	200	200	400	Thomsonite.....	100	200	200	400
Turquoise.....	10,000	23,175	500	23,675	Fluorite.....			500	500
Tourmaline.....	1,030	2,250		2,250	Fossil coral.....	100	200	500	700
Garnet.....	510	1,033	675	2,308	Azurite and malachite...	1,000		2,037	2,037
Quartz.....	510	2,750	11,250	14,000	Catlinite (pipestone).....			5,000	5,000
Amethyst.....	15	98		98	Zircon (a).....			16,000	16,000
Rose quartz.....	200	400	200	600	Gadolinite, fergusonite, etc. (a).....			1,500	1,500
Smoky quartz.....	700	4,007	225	4,232	Monazite (a).....			1,000	1,000
Gold quartz.....	6,000	9,000		9,000	Spodumene (a).....			200	200
Rutilated quartz.....	2	30		30	Wooden ornaments decorated with minerals. (b).....			15,500	15,500
Dumortierite in quartz.....			250	250	Miscellaneous minerals. (c).....			20,000	20,000
Quartz coated with chalcodony.	1,000	2,000	2,000	4,000					
Chrysoptase.....	50	200		200					

a Used to extract the rarer elements for chemical purposes. b Such as clocks, horseshoes, boxes, etc. c For cabinets, museums, etc.

PRECIOUS STONES AND ORNAMENTAL STONES AND MINERALS FOR CABINETS FOUND IN THE UNITED STATES IN 1889, BY STATES AND TERRITORIES.

STATES AND NAMES OF MINERALS.	Value of stones before cutting.	Value after cutting into gems.	Value of specimens, curiosities, etc., occasionally polished to beautify and show structure.	Total value.	STATES AND NAMES OF MINERALS.	Value of stones before cutting.	Value after cutting into gems.	Value of specimens, curiosities, etc., occasionally polished to beautify and show structure.	Total value.
Total		\$107,645	\$81,162	\$188,807	MAINE:				
ARIZONA:					Tourmaline	\$1,030	\$2,250		\$2,250
Garnet		100		100	Spodumene			\$200	200
Agatized and jasperized wood.	\$42,725	53,000	175	53,175	Rose quartz specimens	200	400		400
Azurite and malachite	1,000		2,037	2,037	Miscellaneous minerals			1,700	1,700
Dumortierite in quartz			250	250	MICHIGAN:				
Wulfenite, vanadinite, etc.			1,450	1,450	Fossil coral	100	200	500	700
ARKANSAS:					MINNESOTA:				
Quartz	500	2,700	10,000	12,700	Catlinite ornaments			5,000	5,000
Wavellite			750	750	Chlorastrolite	200	300	200	500
CALIFORNIA:					Thomsonite	100	200	200	400
Gold quartz	6,000	9,000		9,000	MONTANA:				
Rose quartz			200	200	Sapphire	2,600	6,725		6,725
Chrysoprase	50	200		200	NEW MEXICO:				
Garnet			50	50	Garnet	500	1,500		1,500
Miscellaneous minerals for ornaments.			5,000	5,000	Turquoise	10,000	23,175	500	23,675
COLORADO:					NEW YORK:				
Smoky quartz	700	4,000	200	4,200	Quartz	10	50	1,250	1,300
Wood agate and wood jasper.	1,000	2,000	2,000	4,000	Fluorite			500	500
Phenacite			200	200	NORTH CAROLINA:				
Aquamarine	100	250	150	400	Aquamarine	125	347		347
Garnet			925	925	Emerald			150	450
Topaz	100	200	200	400	Amethyst	15	98		98
Miscellaneous minerals			6,100	6,100	Garnet	10	33		33
Mineral clocks, ornaments, etc.			15,500	15,500	Rutilated quartz	2	30		30
Amazon stone			500	500	Smoky quartz			7	25
Pyrite	100	500	1,500	2,000	Zircon for chemical uses			16,000	16,000
KANSAS:					Monazite			1,000	1,000
Banded jasper		80		80	TEXAS:				
Moss jasper			550	550	Gadolinite and fergusonite			1,500	1,500
					UTAH:				
					Minerals			2,500	2,500
					VIRGINIA:				
					Quartz, pebbles, etc.			2,500	2,500

THE DIAMOND-CUTTING INDUSTRY.

In New York there are sixteen firms engaged in cutting and recutting diamonds, and in Massachusetts there are three. Cutting has also been carried on at times in Pennsylvania and Illinois, but has been discontinued. In 1889 seven of the New York firms ran on full time, but the others were unemployed, respectively, 14, 50, 61, 120, 125, and 240 days, owing to inability to obtain rough material at a price at which it could be advantageously cut. The firms that were fully employed were generally the larger ones, whose business consisted chiefly in repairing chipped or imperfectly cut stones or in recutting stones previously cut abroad, which, owing to the superior workmanship in command here, could be recut at a profit, or in recutting very valuable diamonds when it was desired, with the certainty that the work could be done under their own supervision, thus guarding against any possible loss by exchange for inferior stones.

It will be seen from the following table that the industry employed 236 persons, of whom 69 were under age, who received \$148,114 in wages. Of the 19 establishments, 16 used steam power. The power is usually rented. Foot power is only used in one establishment. Three of the firms are engaged in shaping black diamonds for mechanical purposes, for glass cutters and engravers, or in the manufacture of watch jewels.

The average weight of the material before and after cutting is also given in the table. The marked difference in the prices of diamonds as shown is due to variations in the weight and quality of the stones.

Beginning in the latter part of 1888, and through 1889, there was a marked increase in the price of rough diamonds, resulting in rapid advances of from 20 to 25 per cent at a time, amounting in all to an advance of from 80 to 100 per cent above the prices of the previous years.

DIAMOND-CUTTING INDUSTRY.

STATES.	Number of works.	Weight of material before cutting. (Carats.)	Weight after cutting into watch jewels and for mechanical uses. (Carats.)	Value after cutting into gems.	LABOR AND WAGES.						Total wages.	Value of machinery used in cutting.
					Number of men employed.	Average wages per day.	Average number of days employed.	Number of boys employed.	Average wages per day.	Average number of days employed.		
Total.....	19	54,344	25,005	\$1,006,716	167	\$9.55+	233	69	\$0.66+	216	\$148,114	\$77,050
Massachusetts.....	3	4,100	1,580	41,000	11	4.10	300	4	1.17	300	14,934	3,000
New York.....	16	50,244	23,425	965,716	156	8.40	229	65	0.82	211	133,180	74,050

IMPORTS.—The diamonds used in this industry are all imported, for, as already stated, diamonds are only occasionally found in the United States. The following table gives the imports of rough diamonds for a series of years:

IMPORTS OF ROUGH OR UNCUT DIAMONDS FROM 1873 TO 1889, INCLUSIVE.

Years ending June 30—	Rough or uncut diamonds.	Years ending June 30—	Rough or uncut diamonds.
1873.....	\$170,420	1882.....	\$449,513
1874.....	144,020	1883.....	443,996
1875.....	211,020	1884.....	367,816
1876.....	186,404	1885.....	371,679
1877.....	78,033	1886.....	302,322
1878.....	63,270	1887.....	262,357
1879.....	104,158	1888.....	322,356
1880.....	129,207	1889.....	250,187
1881.....	233,596		

The importation of rough and uncut diamonds in 1880 amounted to \$129,207, in 1889 to \$250,187, and the total for the decade was \$3,133,529, while in 1883 there were imported \$443,996 worth, showing that there was 94 per cent more cutting done in 1889 than in 1880, but markedly more in 1882 and 1883. This large increase of importation is due to the fact that in the years 1882 to 1885 a number of our jewelers opened diamond-cutting establishments, but the cutting has not been profitably carried on in this country on a scale large enough to justify branch houses in London, the great market for rough diamonds, where advantage can be taken of every fluctuation in the market and large parcels purchased, which can be cut immediately and converted into cash; for nothing is bought and sold on a closer margin than rough diamonds.

As will be seen by the following table, there has been a remarkable increase in the importation of precious stones in this country in the last ten years. The imports from 1870 to 1879, inclusive, amounted to \$26,698,203, whereas from 1880 to 1889, inclusive, the imports amounted to \$87,198,114, more than three times as much as were imported the previous decade.

IMPORTS OF DIAMONDS AND OTHER STONES NOT SET FROM 1867 TO 1889, INCLUSIVE.

Years ending June 30—	Value.	Years ending June 30—	Value.	Years ending June 30—	Value.
1867.....	\$1,317,420	1875.....	\$3,234,310	1883.....	\$7,598,176
1868.....	1,060,544	1876.....	2,409,516	1884.....	8,712,315
1869.....	1,997,282	1877.....	2,110,215	1885.....	5,628,916
1870.....	1,768,324	1878.....	2,970,469	Years ending December 31—	
1871.....	2,349,482	1879.....	3,841,335	1886.....	9,254,438
1872.....	2,939,155	1880.....	6,600,912	1887.....	10,686,403
1873.....	2,917,216	1881.....	8,320,315	1888.....	10,223,630
1874.....	2,158,172	1882.....	8,377,200	1889.....	11,705,800



CENSUS BULLETIN.

No. 50.

WASHINGTON, D. C.

April 15, 1891.

POPULATION OF RHODE ISLAND

BY MINOR CIVIL DIVISIONS.

DEPARTMENT OF THE INTERIOR,

CENSUS OFFICE,

WASHINGTON, D. C., April 7, 1891.

This bulletin gives the population of the state of Rhode Island in detail by counties, cities, towns, and wards, according to the official count of the returns of the Eleventh Census as finally determined. The population as returned in 1880 is also given for purposes of comparison.

The total population of the state as shown for 1890 is 345,506, which is an increase since 1880 of 68,975, or 24.94 per cent. The population as returned in 1880 was 276,531.

In each of the five counties of the state there has been an increase in population during the decade, although the increase for Bristol county is only nominal. The largest increases have been in Kent and Providence counties, the percentages of increase being, respectively, 29.95 and 28.93.

The figures in detail for each county are shown in the following summary:

SUMMARY BY COUNTIES.

COUNTIES.	POPULATION.		INCREASE.	
	1890.	1880.	Number.	Per cent.
The State.....	345,506	276,531	68,975	24.94
Bristol.....	11,428	11,394	34	0.30
Kent.....	20,754	20,588	6,166	29.95
Newport.....	28,552	24,180	4,372	18.08
Providence.....	255,123	197,874	57,249	28.93
Washington.....	23,649	22,495	1,154	5.13

The seventeen cities and towns which had a population of 4,000 and over in 1890 are given in the order of their rank, as follows:

CITIES AND TOWNS.	COUNTIES.	POPULATION.		INCREASE.	
		1890.	1880.	Number.	Per cent.
Total		308,927	240,200	68,727	28.61
Providence city	Providence.....	132,146	104,857	27,289	26.02
Pawtucket city.....	do	27,633	19,030	8,603	45.21
Woonsocket city.....	do	20,830	16,050	4,780	29.78
Lincoln town.....	do	20,355	13,765	6,590	47.88
Newport city.....	Newport.....	19,457	15,693	3,764	23.99
Warwick town.....	Kent.....	17,761	12,164	5,597	46.01
Johnston town.....	Providence.....	9,778	5,765	4,013	69.61
East Providence town	do	8,422	5,056	3,366	66.57
Cranston town.....	do	8,099	5,940	2,159	36.35
Cumberland town.....	do	8,090	6,445	1,645	25.52
Westerly town.....	Washington.....	6,813	6,104	709	11.62
Burrillville town.....	Providence.....	5,492	5,714	a222	a3.39
Bristol town.....	Bristol.....	5,478	6,028	a550	a9.12
Coventry town.....	Kent.....	5,068	4,519	549	12.15
South Kingston town.....	Washington.....	4,823	5,114	a291	a5.69
Warren town.....	Bristol.....	4,489	4,007	482	12.03
North Kingston town.....	Washington.....	4,198	3,940	244	6.18

a Decrease.

The following table gives the population for 1890 and 1880 in detail by minor civil divisions:

POPULATION BY MINOR CIVIL DIVISIONS.

MINOR CIVIL DIVISIONS.	1890.	1880.	MINOR CIVIL DIVISIONS.	1890.	1880.
BRISTOL COUNTY	11,428	11,894	NEWPORT COUNTY—Continued.....		
Barrington town.....	1,461	1,359	Newport city.....	19,457	15,693
Bristol town.....	5,478	6,028	Ward 1.....	4,454	
Warren town.....	4,489	4,007	Ward 2.....	3,709	
KENT COUNTY	26,754	20,583	Ward 3.....	3,001	
Coventry town.....	5,068	4,519	Ward 4.....	3,242	
East Greenwich town.....	3,127	2,887	Ward 5.....	5,051	
Warwick town.....	17,761	12,164	New Shoreham town.....	1,820	1,203
West Greenwich town.....	798	1,018	Portsmouth town.....	1,049	1,979
NEWPORT COUNTY	28,552	24,180	Tiverton town.....	2,837	2,505
Jamestown town.....	707	459	PROVIDENCE COUNTY	255,123	197,874
Little Compton town.....	1,128	1,202	Burrillville town.....	5,492	5,714
Middletown town.....	1,154	1,139	Cranston town.....	8,099	5,940
			Cumberland town.....	8,090	6,445
			East Providence town.....	8,422	5,056
			Poster town.....	1,252	1,552
			Gloucester town.....	2,095	2,250
			Johnston town.....	9,778	5,765

POPULATION BY MINOR CIVIL DIVISIONS—CONTINUED.

MINOR CIVIL DIVISIONS.	1890.	1880.	MINOR CIVIL DIVISIONS.	1890.	1880.
PROVIDENCE COUNTY—Continued.			PROVIDENCE COUNTY—Continued.		
Lincoln town	20,355	13,765	Smithfield town.....	2,500	3,085
North Providence town.....	2,084	1,467	Woonsocket city.....	20,830	16,050
North Smithfield town	3,173	3,088	Ward 1.....		
Pawtucket city.....	27,633	19,030	Ward 2.....	3,336	
Ward 1.....	6,421		Ward 3.....	4,773	
Ward 2.....	4,467		Ward 4.....	4,707	
Ward 3.....	3,887		Ward 5.....	5,400	
Ward 4.....	7,166			2,564	
Ward 5.....	5,689				
Providence city.....	132,146	104,857	WASHINGTON COUNTY.....		
Ward 1.....	13,709			23,649	22,495
Ward 2.....	13,501		Charlestown town.....	915	1,117
Ward 3.....	17,152		District of Narragansett (a)	1,408	
Ward 4.....	8,573		Exeter town.....	864	1,310
Ward 5.....	12,428		Hopkinton town.....	2,864	2,952
Ward 6.....	12,517		North Kingston town.....	4,196	3,949
Ward 7.....	11,007		Richmond town.....	1,669	1,949
Ward 8.....	12,015		South Kingston town.....	4,823	5,114
Ward 9.....	13,603		Westerly town.....	6,818	6,104
Ward 10.....	17,641				
Scituate town.....	3,174	3,810			

a Set off from South Kingston in 1883.

ROBERT P. PORTER,
Superintendent of Census.